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THE PROGRESSIVE
ARITHMETIC

—

W. F. NICHOLS

PART ONE

THE

PROGRESSIVE ARITHMETIC

PART I

BY

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"AUTHOR OF GRADED LESSONS IN ARITHMETIC," "ARITHMETICAL PROBLEMS,"
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TYPOGRAPHY BY C. J. PETERS & SON,
BOSTON, MASS., U. S. A.

PREFACE.

THIS book is the first one in a series of three books in arithmetic prepared to meet the requirements of those schools where a three book series is preferred.

The aim has been to prepare a book for beginners.

The exercises and examples are made up largely of concrete numbers, and relate to things with which children are familiar. An abundance of abstract work, however, is given that the pupil may acquire accuracy and facility in all the combinations.

As will be seen the pupil is expected to measure distances, to weigh substances, and to learn about forms, areas, and lines ; and by his work in measuring, learn to recognize the measures as wholes, and to discover the relations existing between them.

One or more lessons are given to the developing of a new topic, and the following lessons are so arranged as to give the pupils practice in applying the new topics previously learned. This constant review will be very beneficial.

Realizing that the highest function of arithmetic is to develop thought power, the author has aimed to accomplish this by many concrete problems, and by the method of making only statements of some problems, leaving the

pupils to determine first, *what* can be found, and then *how* to find it.

A large number of oral examples is given. Rapid oral work with problems, such as relate to every-day life, should be demanded in every grade within reasonable limits.

Great care has been taken in grading the problems, yet in all probability a few will be found too difficult for some pupils. In that case the teacher should omit such problems, knowing that the principle will be taken up again.

In the making of this book the author has drawn largely from his *Graded Lessons in Arithmetic*, which furnishes a book for each school year, and which has been received with so much favor.

This book contains a very full Table of Contents, a familiarity with which will enable the teacher to select an abundance of problems relating to all subjects treated.

W. F. NICHOLS.

NEW HAVEN, CONN., Feb. 1, 1903.

SUGGESTIONS TO THE TEACHER.

THE majority of pupils on entering school are more or less familiar with the numbers from one to five. Many of them can count accurately ten objects, and understand the expression one half. At the outset the teacher should find out how much each pupil already knows, and should begin at that point. The first few lessons are intended for a review, or for those who have no idea of number when they enter school.

The number work for the first year should be mainly oral. It is a mistake to introduce pupils too early to the symbols of number. Unfortunately this is too frequently done, in order to provide some busy work for the seat. In that case care should be taken to see that the pupils do not confound the symbol with the thing symbolized. In the first pages of this book we shall use the symbol for brevity in cases where we expect the teacher will use the spoken word only.

Teach the meaning of the words vertical, horizontal, parallel. In all construction work allow the pupils to use the ruler *at first*. As soon as possible train them to draw all lines accurately without a ruler.

TABLE OF CONTENTS.

TABLE OF CONTENTS.

PROGRESSIVE ARITHMETIC.

PART ONE.

1. Show me one pencil, one block, one stick.

2. Raise one finger, one hand, one arm.

3. Point to one chair, one window, one door.

4. How many feet have you? How many eyes?

5. Show me two fingers, two hands, two books.

6. Take one stick. Take another stick. How many sticks have you now?

7. One stick and one stick are how many sticks?

8. Draw a line one inch long. Draw another line one inch long. How many lines have you?

9. One line and one line are ———— lines.

10. How long is the first line? How long is the second line? How long are both lines?

11. One inch and one inch are ———— inches.

12. Take two blocks. Give me one block. How many blocks have you left?

13. Two blocks less one block is ———— block.

14. How many are two less one?

15. One and one are two. Two less one is one.

16. Take one stick; now take one more. How many times have you taken one stick?

17. Two times one stick are ———— sticks.

18. Draw two parallel lines one inch long.

19. Draw a vertical line two inches long.

20. Draw one horizontal and one vertical line each one inch long.

●
● Three　　　●● and ● are ●●●
●

1. Take two sticks. Put one more stick with them. You now have three sticks.

2. Two sticks and one stick are —— sticks.

3. Show me three fingers, three pencils, three books, three blocks.

4. If you have two sticks, how many more sticks must you take to have three sticks?

5. Take one stick; take one more stick; and then take one more. How many sticks have you?

6. One stick, and one stick, and one stick are —— sticks.

7. 1 and 1 and 1 are 3. 2 and 1 are 3.

8. Take 3 blocks. Put one block back. You now have —— blocks.

9. Take three blocks. Put 2 blocks back. How many blocks have you now?

10. 3 less 1 are 2. 3 less 2 is 1.

11. How many are 3 less 1? This figure is called a triangle.

12. How many sides has this triangle? How many angles has it?

13. Take three sticks. Place them so that they form a triangle.

14. Draw three horizontal lines, three parallel lines, three vertical lines.

15. How many times must you take one block to have three blocks?

16. Three times one block are —— blocks.

17. If I have three cents, to how many boys can I give one cent each?

18. How many ones are there in 3?

19. Two times one are two. Three times one are three.

Four   ●●● AND ● 3 AND 1 ARE 4.

●● AND ●● 2 AND 2 ARE 4.
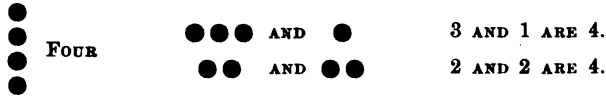
1. Take three blocks. Put one more block with them. You now have four blocks.

2. Three blocks and one block are ———— blocks.

3. How many are three and one?

4. One stick and three sticks are ———— sticks.

5. Two horses and two horses are ———— horses.

6. Take four sticks. Give me one stick. You have ———— sticks left. How many are 4 less 1?

7. Take four sticks again. Give me two sticks. You have ———— sticks left. How many are 4 less 2?

8. Take another four sticks. Give me 3 sticks. You have ———— stick left. How many are 4 less 3?

9. If you take 4 sticks and give me 4 sticks, how many sticks will you have left? 4 less 4 are how many? Take four sticks.

10. Arrange them in one horizontal line. How long is the line?

11. Arrange them in two equal parallel lines. How long is each line?

12. Make a triangle. How many sticks are left over?

13. If you take one stick at a time for four times, how many sticks will you have?

14. Four times one stick are ———— sticks.

15. If you take two sticks at a time for two times, how many sticks will you have?

16. Two times two sticks are ———— sticks.

17. If you have 4 pencils, how many times can you give me one pencil?

18. There are ———— ones in 4.

19. If you have 4 blocks, how many times can you give me 2 blocks?

1 INCH		2 INCHES	
SQUARE	1 INCH	OBLONG	1 INCH
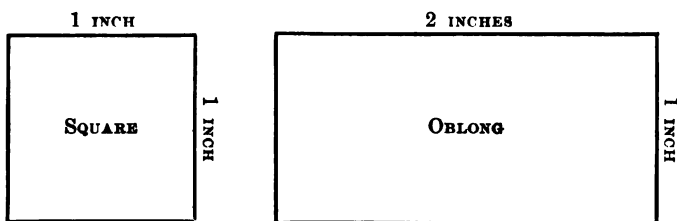
1. This square has ——— corners.
2. This square has ——— equal sides.
3. Each side of this square is ——— inch long.
4. This square is a 1-inch square.
5. The oblong has ——— corners.
6. The oblong has ——— sides.
7. Two of the sides of the oblong are longer than the other two.
8. The oblong is ——— inches long.
9. The oblong is ——— inch wide.
10. Draw on paper a square and oblong the same size as those on this page.
11. Divide the oblong into inch squares. How many are there?
12. Draw another square and oblong, making each side twice as large as those on this page.
13. How long is the square? How wide is it?
14. How long is the oblong?
15. Draw a square 2 inches on a side.
16. Draw 2 squares 3 inches on a side.
17. Draw 3 squares 4 inches on a side.
18. Draw an oblong 2 inches long and 1 inch wide.
19. Draw an oblong 3 inches long and 2 inches wide.
20. Draw an oblong 3 inches long and 1 inch wide.
21. Draw an oblong 4 inches long and 2 inches wide. Take 4 inch-squares.
22. Arrange them so as to form a 2-inch square.
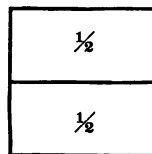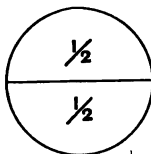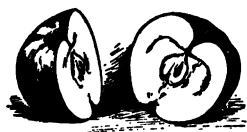
NOTE. — Be sure that the pupil understands what is meant by one half before he is asked to find a half of any number of things. He should cut into halves apples, balls of clay, etc. He should draw circles, squares, and oblongs, and divide them into halves. Care must be taken that the drawing is *exactly* divided into two parts that the pupil may get a correct mental picture of one half. When this correct idea of one half has been grasped he is then ready to find one half of any number.

1. Draw a square. Divide it into two equal parts. One part is called one half. How many halves are there in the whole square?

2. Draw an oblong 2 inches long and 1 inch wide. Divide it into halves. How many inch-squares in each half?

3. Draw a line 2 inches long. Divide it into 2 equal parts. What is each part called? How long is each part?

4. One half of 4 balls is two balls.

5. One half of 4 pencils is ——— pencils.

6. Draw 4 inch-squares. Color one half of them red and one half blue.

7. Draw a line one inch long. Divide it into halves. Each half is one half of an inch long.

8. Draw 4 triangles. Color one half of them yellow.

9. Draw a two-inch square. How many square inches are there in it? How many square inches in one half of a two-inch square?

10. If one half of an apple is worth a cent, how much is the whole apple worth?

Five, 5   AND   4 AND 1 ARE 5.
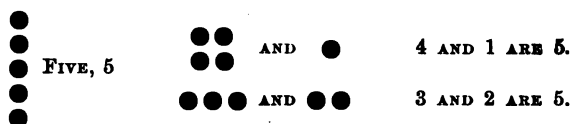
     AND   3 AND 2 ARE 5.

1. Take four sticks. Take one more stick. You now have 5 sticks.

2. Four sticks and one stick are ——— sticks.

3. Three apples and 2 apples are ——— apples.

4. How many are 4 and 1? 3 and 2?

We write the answer in two ways: —

     4 and 1 are 5   3 and 2 are 5

     $4 + 1 = 5$ $3 + 2 = 5$

5. The sign $+$ takes the place of what word? The sign $=$ of what word?

6. Using the signs, write: 3 and 1 are 4; 2 and 2 are 4; 1 and 4 are 5; 2 and 3 are 5.

You may all take 5 sticks.

7. Put back one stick. How many sticks are left?

8. Put back 2 sticks. How many sticks are left?

9. Put back 3 sticks. How many sticks are left?

10. Put back 4 sticks. How many sticks are left?

11. Put back 5 sticks. How many sticks are left?

12.
5 less 1 =	$4 + 1 =$	$2 + 2 + 1 =$
5 less 2 =	$3 + 2 =$	$3 + 1 + 1 =$
5 less 3 =	$1 + 4 =$	$2 + 1 + 2 =$
5 less 4 =	$2 + 3 =$	$1 + 1 + 3 =$
5 less 5 =	$3 + 2 =$	$2 + 1 + 2 =$

13. Draw a line 5 inches long. Divide it into 2 equal parts. How long is each part?

14. One half of 5 inches is ——— inches.

15. Two and one half apples are one half of ——— apples.

16. Draw an oblong 5 inches long and one inch wide. Divide it into 1-inch squares. How many are there?

●   ●●● AND ●   5 AND 1 ARE 6.
●   ●●
● SIX, 6
●   ●● AND ●●   4 AND 2 ARE 6.
●   ●●
●   ●●● AND ●●●   3 AND 3 ARE 6.
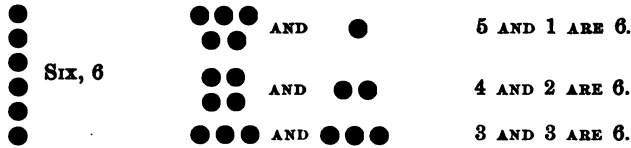
1. Take 5 sticks. Put another stick with them. You now have 6 sticks.

2. Five sticks and one stick are ——— sticks.

3. Four cents and two cents are ——— cents.

4. 4 horses and 2 horses are ——— horses.

5. Three balls and three balls are ——— balls.

6. 3 books and 3 books are ——— books.

7. $5 + 1 =$ $3 + 3 =$ $1 + 5 =$

     $4 + 2 =$ $2 + 4 =$ $2 + 2 + 2 =$

8. From a pile of 6 blocks, give me one block. How many blocks are left?

9. 6 blocks less 1 block are ——— blocks.

10. From 6 blocks give me 2 blocks. You have ——— blocks left.

11. 6 blocks less 2 blocks are ——— blocks.

12. From 6 blocks give me 3 blocks. You have ——— blocks left.

13. 6 blocks less 3 blocks are ——— blocks.

14. How many are 6 less 3? We write it in two ways.

$$6 \text{ less } 3 \text{ are } 3, \text{ or } 6 - 3 = 3.$$

15. The sign — takes the place of what word?

16. $6 - 1 =$ $6 - 3 =$ $6 - 5 =$

     $6 - 2 =$ $6 - 4 =$ $6 - 6 =$

17. Take 6 blocks, and put them into 2 equal piles. How many blocks are there in each pile?

18. 2 times 3 blocks are ——— blocks.

19. Take 6 blocks and put them into 3 equal piles. How many blocks are there in each pile?
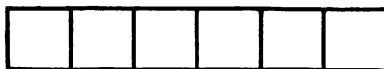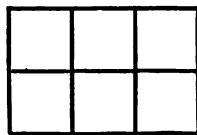
Every teacher should be provided with a large quantity of 1-inch squares.

1. Take 6 inch-squares. Arrange them in the form of an oblong 3 inches by 2 inches.

2. Arrange them in the form of an oblong 6 inches by 1 inch.

3. Arrange them in the form of a 2-inch square. How many squares have you left?

4. Give me one half of your squares. You have —— squares left.

5. One half of six squares is —— squares.

Take 6 inch-sticks.

6. Arrange them in triangles. How many can you make?

7. 6 sticks will make —— triangles.

8. Arrange them in the form of a square. How many sticks have you left?

9. Arrange them in 2 vertical lines. There are —— sticks in each line.

10. Arrange them in 3 horizontal lines. There are —— sticks in each line.

11. It takes 2 cents to buy a stamp. How many stamps can I buy for 6 cents?

12. How many more are 6 pencils than 4 pencils?

13. How many less are 3 pencils than 6 pencils?

14. George had 4 marbles. He bought 2 more. He then had —— marbles.

15. Henry had 6 marbles. He lost 3 of them. He then had —— marbles.

16. $2 + 2 + 2 = ?$ How many are three 2's?
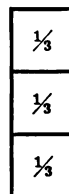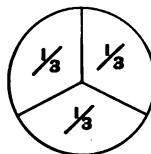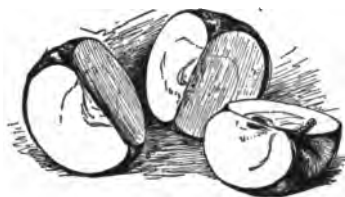
(See note on page 5.)

1. Into how many parts is the apple divided? Each part is called one third.

2. Cut this ball of clay into thirds.

3. Into how many parts is the circle divided?

4. Draw a circle, and divide it into thirds.

5. We write one third like this: $\frac{1}{3}$.

We write one half like this: $\frac{1}{2}$.

6. How many thirds are there in a whole apple?

7. How many halves are there in a whole apple?

8. Which is the larger, $\frac{1}{2}$ of an apple, or $\frac{1}{3}$ of an apple?

9. Take 6 sticks. Divide them into 3 equal piles. How many are there in each pile?

10. One third of 6 is ———.

11. If you have 6 cents and spend $\frac{1}{3}$ of them, how many do you spend?

Take 6 blocks, and divide them into 3 equal piles.

12. How many are in each pile?

13. Each pile is what part of the whole?

14. Then 2 is $\frac{1}{3}$ of how many?

15. Give me $\frac{1}{3}$ of your 6 blocks. How many blocks have you left?

16. Arrange the blocks you have left in a square. How many blocks are on each side?

17. One third of 3 is ———.

● ● ● **AND** ● $6+1=7.$

SEVEN, 7   ● ● ● **AND** ● ● $5+2=7.$
             ● ●

             ● ● **AND** ● ● ● $4+3=7.$
             ● ●
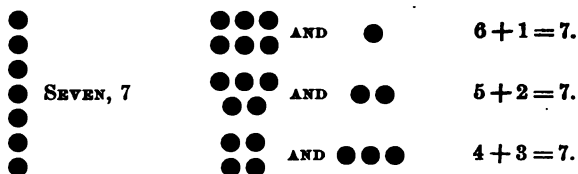
1. $6 + ? = 7$ $? + 1 = 7$ $6 + 1 = ?$
2. $5 + ? = 7$ $? + 2 = 7$ $5 + 2 = ?$
3. $4 + ? = 7$ $? + 3 = 7$ $4 + 3 = ?$
4. Two pins and five pins are ——— pins.
5. Three pencils and four pencils are ——— pencils.
6. One egg and six eggs are ——— eggs.
7. Seven blocks less one block are ——— blocks.
8. Seven blocks less two blocks are ——— blocks.
9. Seven blocks less three blocks are ——— blocks.
10. Seven blocks less four blocks are ——— blocks.
11. Seven blocks less five blocks are ——— blocks.
12. Seven blocks less six blocks is ——— block.
13. If a top costs 2 cents and a ball 5 cents, how much will they both cost?
14. William had 4 cents, and his father gave him 3 more. He then had ——— cents.
15. Henry had 7 peaches, and gave his sister 2 of them. He had ——— peaches left.
16. Bessie is 5 years old, and her brother is 2 years older. How old is her brother?
17. Seven birds were on a tree, and 4 flew away. There were ——— birds left.
18. There are 7 days in a week. Two days of the week are gone. How many days are left?
19. How many cents must I put with four cents to make 7 cents?
20. I have 5 cents. To have 7 cents I need ——— cents more.

Eight, 8 AND 7 + 1 = 8. AND 6 + 2 = 8.

AND 5 + 3 = 8. AND 4 + 4 = 8.
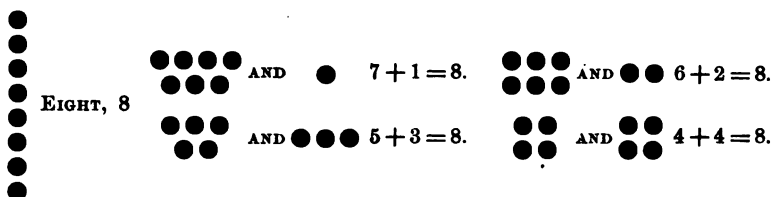
1. 7 + ? = 8   4 + ? = 8   ? + 7 = 8
2. 6 + ? = 8   3 + ? = 8   ? + 5 = 8
3. 5 + ? = 8   2 + ? = 8   ? + 6 = 8
4. 8 − 7 = ?   8 − 4 = ?   8 − 1 = ?
5. 8 − 6 = ?   8 − 3 = ?   8 − 8 = ?
6. 8 − 5 = ?   8 − 2 = ?   1 + ? = 8

7. Arrange 8 blocks in 2 equal piles. There are ———— blocks in each pile.

8. 2 times 4 blocks are ———— blocks.

9. 4 blocks are contained in 8 blocks ———— times.

10. Arrange 8 blocks in 4 equal piles. There are ———— blocks in each pile.

11. 4 times 2 blocks are ———— blocks.

12. One half of 8 inches is ———— inches.

13. 4 inches are one half of ———— inches.

14. Draw an oblong 4 inches by 2 inches. Cover it with inch-squares. How many inch-squares will cover it?

15. How many inch-squares are there in a row? How many rows are there? 4 inch-squares and 4 inch-squares are ———— inch-squares.

16. How many inch-squares will cover one half of the oblong?

17. One half of 8 squares is ———— squares.

18. Draw a horizontal line 8 inches long. Divide it in 2 equal parts. Each part is ———— inches long.

19. Take 8 blocks. Place them in 2 equal piles. You have ———— blocks in each pile.
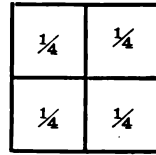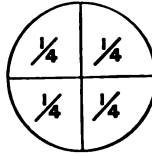
(See note on page 5.)

1. Into how many parts is the apple divided? Each part is called one fourth.

2. One fourth is written $\frac{1}{4}$.

3. Divide an apple into 4 equal parts.

4. Divide this stick into 4 equal parts.

5. Draw a square. Divide it into fourths. You have ——— fourths.

6. Here is an oblong 4 inches long and 1 inch wide. Divide it into fourths. How many inch-squares are there in $\frac{1}{4}$ of it?

7. Color $\frac{1}{4}$ red; $\frac{1}{4}$ blue; $\frac{1}{4}$ yellow; and $\frac{1}{4}$ green. How many fourths are there in the whole oblong?

8. There are ——— fourths in one whole.

9. Take 4 sticks. Give me one fourth of them.

10. One fourth of 4 is ———.

11. Take 8 sticks. Give me $\frac{1}{4}$ of them. One fourth of 8 is ———.

12. Take 8 squares. Place them in 4 equal piles. In one pile there are ——— squares.
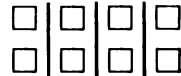
13. One fourth of 8 squares is ——— squares.

14. Take 8 sticks. Give me $\frac{1}{4}$ of them. You have ——— sticks left.

15. Give me $\frac{1}{2}$ of what you have left. You now have ——— sticks.

16. One pencil is $\frac{1}{4}$ of how many pencils?

Nine, 9

$8 + 1 = 9.$

$7 + 2 = 9.$

$6 + 3 = 9.$

$5 + 4 = 9.$
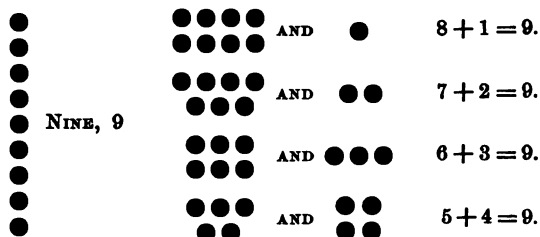
1. $8 + ? = 9$	$? + 5 = 9$	$7 + 2 = ?$
2. $7 + ? = 9$	$? + 6 = 9$	$6 + 3 = ?$
3. $6 + ? = 9$	$? + 7 = 9$	$8 + 1 = ?$
4. $5 + ? = 9$	$? + 8 = 9$	$4 + 5 = ?$
5. $9 - 1 = ?$	$9 - 4 = ?$	$9 - 7 = ?$
6. $9 - 2 = ?$	$9 - 5 = ?$	$9 - 8 = ?$
7. $9 - 3 = ?$	$9 - 6 = ?$	$9 - 9 = ?$

8. Take a 3-inch square. Cover it with inch-squares. How many does it take?

9. How many squares are there in a row? How many rows are there?

10. 3 squares and 3 squares and 3 squares are ——— squares.

11. 3 times 3 squares are ——— squares.

12. At 3 cents each 3 lemons cost ——— cents.

13. At 3 cents each how many oranges can you buy for 9 cents? O O O | O O O | O O O

14. In 9 cents there are ——— three cents.

15. How many 3's are there in 9?

16. Take 9 blocks. Place them in 3 equal piles. How many are there in each pile?

17. One third of 9 blocks is ——— blocks.

18. Take 9 blocks. Give me one third of them. How many have you left?

19. Give me one half of what are left. You have now ——— blocks.

Ten, 10

$9 + 1 = 10.$

$8 + 2 = 10.$

$7 + 3 = 10.$

$6 + 4 = 10.$

$5 + 5 = 10.$
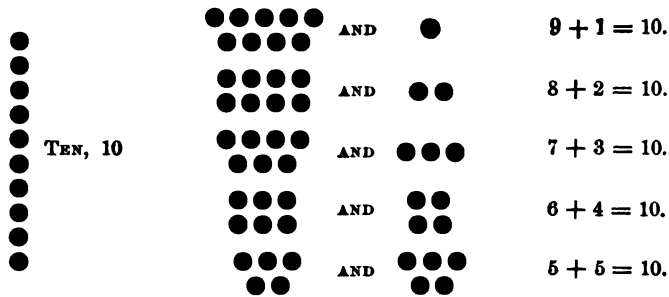
1. 6 blocks and 4 blocks are —————— blocks.

2. 5 blocks and 5 blocks are —————— blocks.

3. 8 blocks and 2 blocks are —————— blocks.

4. 7 blocks and 3 blocks are —————— blocks.

5.

$10 - 5 = ?$	$3 + 7 = ?$	$10 - 6 = ?$
$6 + 4 = ?$	$10 - 4 = ?$	$9 + 1 = ?$
$8 + 2 = ?$	$2 + 8 = ?$	$10 - 8 = ?$
$10 - 7 = ?$	$5 + 5 = ?$	$7 + 3 = ?$

6. Take 10 squares and put them in 2 equal piles. In each pile there are —————— squares. 2 times 5 squares = —————— squares.

7. Put the ten squares in 5 equal piles. In each pile there are —————— squares. 5 times 2 squares are —————— squares.

8. 2 times 5 = 10.   5 times 2 = 10.

9. If one orange costs 5 cents, what will 2 oranges cost?

10. How many 2 cent stamps can you buy for 10 cents?

11. ½ of 10 cents are how many cents?

12. Take 10 sticks. Give me ⅕ of them.

13. Take 10 inch-squares and arrange them in the shape of an oblong 5 inches by 2 inches.

14. An oblong 5 inches by 2 inches contains —————— square inches.

1. May is 8 years old. If she is 2 years older than her sister, how old is her sister?

2. George found 5 eggs in one nest, and 4 in another. How many eggs did he find?

3. 6 girls and 3 boys are in the same class. How many pupils are in the class?

4. A mat measures 8 feet in length. What is the length of a mat one half as long?

5. A string measures 9 feet in length. What is the length of a string one third as long?

6. A man has 8 miles to travel. When he has traveled 4 miles, what part of the distance has he traveled?

7. Mary had 4 shells, and her brother gave her 6 more. How many shells had she then?

8. George rode 5 miles on a bicycle, and walked 3 miles. How many miles did he travel?

9. Charles is 2 years old. His sister is 9 years old. How many years older is she than Charles?

10. I divided 8 plums equally between 2 boys. What part of the plums did each boy have? How many plums?

11. How many marbles must you put with 6 marbles in order to have 9 marbles?

12. Make 3 triangles and 2 squares. How many sides are there in the triangles? In the squares? How many more sides have the triangles than the squares?

13. A merchant sold 5 barrels of flour on Monday and 4 on Tuesday. How many barrels did he sell?

14. Harry spelled 6 words, and George spelled 4. How many words did both boys spell?

15. Take 8 inch sticks. How many inch squares can you make? How many 2-inch squares?

16. Take 9 inch sticks. Arrange them in the form of a triangle. How many inches are there in each side of the triangle.

Add:

1. 3   2   4   3   5   6   7   7
        4   5   4   3   0   0   1   0
        2   1   2   3   5   3   2   3
       ___ ___ ___ ___ ___ ___ ___ ___

2. 3   4   6   5   9   8   2   3
        4   1   3   2   0   2   2   4
        3   5   1   2   1   0   5   2
       ___ ___ ___ ___ ___ ___ ___ ___

3. 5   4   5   6   4   6   3   7
        0   0   1   1   3   0   3   1
        2   5   3   3   2   4   4   1
       ___ ___ ___ ___ ___ ___ ___ ___

4. 6   4   4   5   5   3   3   7
        0   4   1   4   3   5   6   2
        2   1   3   1   1   2   1   0
       ___ ___ ___ ___ ___ ___ ___ ___

Subtract:

5. 10   9   10   8   10   7   8   6
         4   3   7   4   5   3   6   4
       ___ ___ ___ ___ ___ ___ ___ ___

6. 10   8   6   4   7   5   9   10
         6   7   3   2   5   3   5   8
       ___ ___ ___ ___ ___ ___ ___ ___

7.   9   7   5   3   4   6   8   10
         4   4   2   2   1   5   5   3
       ___ ___ ___ ___ ___ ___ ___ ___

8.   4   6   8   10   5   7   9   8
         3   2   3   9   4   2   6   7
       ___ ___ ___ ___ ___ ___ ___ ___

1. A farmer had 6 sheep and bought 4 more. How many did he then have?

2. Samuel has 9 dollars and George has 6 dollars. Samuel has ——— dollars more than George.

3. In a family there are 5 boys and 3 girls. How many children are there in the family?

4. John has 6 apples and Henry has 3 apples. Together they have ——— apples.

5. Mary had 7 pieces of candy, and gave 3 of them away. She had ——— pieces left.

6. Nellie's mother sent her to the store to buy some milk for 6 cents, a yeast cake for 2 cents, and some candy for 1 cent. How many cents did Nellie spend?

7. Nellie's mother gave her 10 cents. She brought back ——— cents.

8. I have 7 cents. How many more cents do I need to have 10 cents.

9. Charles is 6 years old. How old will he be in 3 years?

10. If Charles' sister is 4 years older than he, how old is his sister?

11. Mabel had seven cents, and her mother gave her 3 cents more. Mabel then had ——— cents.

12. Mabel had 10 cents, and spent 5 cents for a spool of thread. She then had ——— cents.

13. How many birds are 7 birds and 2 birds, less 1 bird?

14. How many roses are 6 roses and 3 roses, less 4 roses?

15. Grace had 4 badges, and a friend gave her 5 more. She then had ——— badges.

16. Philip had 3 cents in one pocket and 4 cents in another pocket. His father gave him two cents more. How many cents had he then?
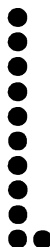
$$1 + 10, \text{ or } 10 + 1 = 11 \qquad \text{I} = 1$$
$$2 + \ 9, \text{ or } \ 9 + 2 = 11 \qquad \text{II} = 2$$
$$3 + \ 8, \text{ or } \ 8 + 3 = 11 \qquad \text{III} = 3$$
$$4 + \ 7, \text{ or } \ 7 + 4 = 11 \qquad \text{IV} = 4$$
$$5 + \ 6, \text{ or } \ 6 + 5 = 11$$

$10 + 1 = 11$

	2.	**3.**	**4.**
	$4 + ? = 11$	$? + 2 = 11$	$9 + 2 = ?$
1.	$6 + ? = 11$	$? + 9 = 11$	$6 + 5 = ?$
$10 + 1 = ?$	$7 + ? = 11$	$? + 1 = 11$	$4 + 7 = ?$
$7 + 4 = ?$	$8 + ? = 11$	$? + 4 = 11$	$8 + 3 = ?$

Add by lines and columns:

5.   6.   7.   8.   **13. 14. 15. 16.**

9. $\ 3 + 3 + 3 + 1 = ?$ **17.** $\ 2 + 5 + 2 + 1 = ?$

10. $\ 2 + 5 + 3 + 1 = ?$ **18.** $\ 1 + 4 + 2 + 3 = ?$

11. $\ 4 + 2 + 2 + 3 = ?$ **19.** $\ 3 + 1 + 4 + 2 = ?$

12. $\ 2 + 1 + 1 + 6 = ?$ **20.** $\ 5 + 2 + 1 + 3 = ?$

Sight addition:

21.	**22.**	**23.**	**24.**	**25.**	**26.**	**27.**	**28.**	**29.**	**30.**
4	7	6	2	5	3	7	6	5	5
3	3	5	8	4	6	4	4	2	6

31.	**32.**	**33.**	**34.**
$11 - ? = 2$	$11 - ? = \ 8$	$4 + 3 = ?$	$11 - 4 = ?$
$11 - ? = 4$	$11 - ? = \ 7$	$5 + 5 = ?$	$7 + 4 = ?$
$11 - ? = 9$	$11 - ? = \ 3$	$6 + 3 = ?$	$3 + 7 = ?$
$11 - ? = 5$	$11 - ? = 10$	$8 + 3 = ?$	$3 + 3 = ?$
$11 - ? = 6$	$11 - ? = \ 1$	$10 - 1 = ?$	$9 + 2 = ?$

1. Rose is 7 years old, and her brother is 2 years older. How old is her brother?

2. In a brood of ten chickens, one chicken was white and the rest were black. How many were black?

3. Nellie had 11 cents; she spent 4 of them, lost 2, and gave away 3; how many had she left?

4. Mary had 11 oranges, and gave her sister 7 of them; how many had she left?

5. If your mother gives you a 5-cent piece, a 2-cent piece, and 4 cents, how much money does she give you?

6. Some boys are coasting on a hill. There are 5 boys coming down, and 6 boys going up. How many boys are there in all?

7. If 7 of these boys have sleds, how many boys do not have sleds?

8. Wilfred went out to the barn to find some eggs for his mother. He found 7 eggs in one nest, and 4 in another; how many did he find in all? If his mother should use 3 of them, how many would be left?

9. If you spell 3 words on Monday, 1 on Tuesday, 4 on Wednesday, 2 on Thursday, and 1 on Friday, how many words do you spell during the week?

10. Two boys, Ned and Willie, were passing ball, and each threw it 11 times. Ned missed it twice and Willie two times; how many times did each catch it?

11. If Mary has 11 words to learn to spell, but misses 4, how many does she spell?

12. Write all the numbers that make 11.

13. Take 11 sticks, and form 2 squares and 1 triangle; how many sticks have you left?

14. Find 11 vertical lines in the room.

15. George had 6 cents, and his brother had half as many. His brother had ——— cents. Together they had ——— cents.

1. Draw 11 parallel lines, each one inch long.

2. Draw 1 line 11 inches long.

3. Draw 11 squares, each side one inch long.

4. Draw 11 triangles.

5. Measure a line on the floor 11 feet long.

6. 11 is how many more than 5? 7? 9? 10? 8? 6? 4? 2? 1? 3?

7. Cut a string 1 foot long. Cut off 11 inches from this string. Measure the length of the piece that is left.

8. Cut a string 11 feet long. Cut off from this a piece 9 feet long. How much is left?

9. What two different pieces of money make 11 cents?

10. How many windows are there in 3 rooms, if there are 3 windows in each room?

11. Make an example for $11 - 3 = 8$.

12. Make an example for $6 + 5 = 11$.

13. Make an example for $8 + 3 = 11$.

14. Make an example for $7 + 4 = 11$.

15. Make an example for $11 - 10 = 1$.

16. Make an example for $11 - 5 = 6$.

17. Make an example for $11 - 6 = 5$.

Fill the blanks with suitable words, as 8 books and 3 books are 11 books.

18. 8 (   ) and 3 (   ) are ———— (   ).

19. 9 (   ) and 2 (   ) are ———— (   ).

20. 7 (   ) and 4 (   ) are ———— (   ).

21. 5 (   ) and 5 (   ) are ———— (   ).

22. 10 (   ) and 1 (   ) are ———— (   ).

23. 11 (   ) less 4 (   ) are ———— (   ).

24. 11 (   ) less 8 (   ) are ———— (   ).

25. 10 (   ) less 7 (   ) are ———— (   ).

26. 3 (   ) and 8 (   ) are ———— (   ).

27. 5 (   ) and 4 (   ) are ———— (   ).

28. 6 (   ) and 5 (   ) are ———— (   ).

1.
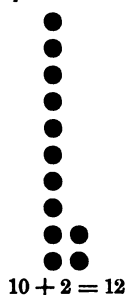
$2 + 10$ or $10 + 2 = 12$
$3 + 9$ or $9 + 3 = 12$
$4 + 8$ or $8 + 4 = 12$
$5 + 7$ or $7 + 5 = 12$
$6 + 6 \qquad\quad = 12$
$6 \times 2 = 12 \qquad 3 \times 4 = 12$

$10 + 2 = 12$

2.

$V = 5$
$VI = 6$
$VII = 7$
$VIII = 8$
$IX = 9$

3.

$4 + 8 = ?$
$6 + 6 = ?$
$7 + 5 = ?$
$2 + 10 = ?$

4.

$8 + ? = 12$
$6 + ? = 12$
$2 + ? = 12$
$11 + ? = 12$

5.

$? + 5 = 12$
$? + 7 = 12$
$? + 4 = 12$
$? + 9 = 12$

6.

$12 - 8 = ?$
$12 - 4 = ?$
$12 - 9 = ?$
$12 - 3 = ?$

7.

$12 - 10 = ?$
$12 - 5 = ?$
$12 - 6 = ?$
$12 - 2 = ?$

8.

$12 - ? = 9$
$12 - ? = 7$
$12 - ? = 5$
$12 - ? = 3$

9.

$? - 4 = 8$
$? - 6 = 6$
$? - 5 = 7$
$? - 10 = 2$

10.

$7 + 5 = ?$
$3 + 9 = ?$
$8 + 4 = ?$
$2 + 10 = ?$

11. Subtract:

10	11	9	7	12	7	9	9	9	10	6
9	2	5	3	6	5	4	8	6	3	3

12. Subtract:

11	9	11	11	8	12	10	12	11	10	12
6	2	7	8	4	3	5	7	5	7	8

13. Add:

1	9	2	4	5	3	4	2	3	6	1	4
4	3	8	6	2	4	8	3	8	3	9	5

NOTE TO THE TEACHER. — 2×3 may be read "2 times 3" or "2 multiplied by 3," when both terms are abstract. 2×3 should always be read "$2 multiplied by 3." $3 \times 2 may be read "3 times $2." $6 \div 2$ may be read "6 divided by 2" or "2 is contained in 6."

1. $2 \times 2 = ?$ **2.** $3 \times 2 = ?$ **3.** $2 \times 3 = ?$
$2 \times 4 = ?$ $4 \times 2 = ?$ $2 \times 5 = ?$
$5 \times 2 = ?$ $3 \times 3 = ?$ $3 \times 4 = ?$
$6 \times 2 = ?$ $2 \times 6 = ?$ $4 \times 3 = ?$

4. $12 \div 2 =$ **5.** $12 \div 3 =$ **6.** $12 \div 4 =$
$12 \div 6 =$ $10 \div 2 =$ $10 \div 5 =$
$8 \div 2 =$ $8 \div 4 =$ $8 \div 8 =$
$6 \div 2 =$ $6 \div 3 =$ $6 \div 6 =$
$4 \div 4 =$ $4 \div 2 =$ $3 \div 3 =$
$11 \div 2 =$ $9 \div 2 =$ $7 \div 2 =$

Multiply:

7.   4   6   4   3   5   3
     2   2   3   3   2   4

8.   2   2   3   2   2   2
     5   3   2   4   6   2

Divide:

9. $2)\overline{10}$ $2)\overline{4}$ $3)\overline{6}$ $4)\overline{12}$ $5)\overline{10}$

10. $3)\overline{12}$ $2)\overline{8}$ $6)\overline{12}$ $4)\overline{8}$ $3)\overline{9}$

11. $2)\overline{6}$ $2)\overline{12}$ $2)\overline{9}$ $2)\overline{7}$ $2)\overline{11}$

12. $\frac{1}{2}$ of $2 = ?$ $\frac{1}{2}$ of $8 = ?$ $\frac{1}{3}$ of $3 = ?$ $\frac{1}{3}$ of $12 = ?$
$\frac{1}{2}$ of $4 = ?$ $\frac{1}{2}$ of $10 = ?$ $\frac{1}{3}$ of $6 = ?$ $\frac{1}{4}$ of $4 = ?$
$\frac{1}{2}$ of $6 = ?$ $\frac{1}{2}$ of $12 = ?$ $\frac{1}{3}$ of $9 = ?$ $\frac{1}{4}$ of $8 = ?$

a	4	7	8	9	3	5	1	8	2	6	*a*
b	7	3	4	2	8	6	9	3	7	6	*b*
c	5	8	5	6	4	3	2	9	5	4	*c*
d	6	4	7	5	7	9	8	2	7	8	*d*
e	4	7	3	7	4	2	4	8	4	2	*e*
f	8	3	8	2	6	8	7	4	8	9	*f*
g	3	9	2	9	5	3	5	6	3	1	*g*
h	9	1	9	2	7	9	6	5	8	9	*h*
i	1	8	2	8	2	3	4	7	4	3	*i*
j	8	2	7	3	9	8	7	3	6	8	*j*
k	4	9	1	8	2	2	5	8	5	3	*k*
l	3	1	5	3	9	8	4	1	3	6	*l*
m	9	9	6	2	1	1	5	9	7	4	*m*
n	2	3	4	4	5	8	6	1	5	8	*n*
o	6	5	7	8	4	3	5	9	5	4	*o*
p	5	7	4	3	6	7	4	2	3	6	*p*

Practice until every pupil can give the sum of any two lines at sight. Numbers below 12.
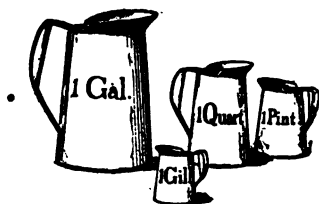
1. Take the smallest measure, the gill; fill it with water, and pour it into the next larger one, the pint. Continue to do so till the pint measure is full. How many gills make a pint?

2. In the same way find out how many pints make a quart.

3. In the same way find out how many quarts make a gallon.

4. Write this table on your paper, filling the blanks:

— gills make 1 pint.   gi. stands for gill or gills.
— pints make 1 quart.   pt. stands for pint or pints.
— quarts make 1 gallon.   qt. stands for quart or quarts.
                             gal. stands for gallon or gallons.

5. Learn and recite the table you have just made.

6. How many pints in a quart?   In a gallon?

7. How many gills in a pint?   In a quart?

8. What part of a gallon is 1 quart?

9. What part of a gallon is 2 quarts?

10. What part of 1 quart is 1 pint?

11. What part of a quart is 2 pints?

12. What part of a gallon is 4 quarts?

13. What part of a pint is 4 gills?

14. What part of a pint is 2 gills?

15. What part of a pint is 1 gill?

16. What part of a quart is 4 gills?

17. If 1 quart of milk costs 6 cents, what will 2 quarts cost?

18. If your oil-can holds 2 gal., and your lamp holds 1 quart, how many times can you fill your lamp from your can?

1. How many gills are there in a pint?
2. How many gills are there in 3 pints?
3. How many gills are there in 2 pints?
4. How many pints are there in a quart?
5. How many pints are there in 3 quarts?
6. How many pints are there in 5 quarts?
7. How many pints are there in 2 quarts?
8. How many pints are there in 4 quarts?
9. How many pints are there in 6 quarts?
10. How many pints are there in $2\frac{1}{2}$ quarts?
11. How many quarts are there in a gallon?
12. How many quarts are there in 3 gallons?
13. How many quarts are there in 2 gallons?
14. How many quarts are there in $\frac{1}{2}$ of a gallon?
15. How many pints are there in $\frac{1}{2}$ of a quart?
16. How many pints are there in 4 gills?
17. How many pints are there in 8 gills?
18. How many pints are there in 12 gills?
19. How many quarts are there in 2 pints?
20. How many quarts are there in 6 pints?
21. How many quarts are there in 10 pints?
22. How many quarts are there in 4 pints?
23. How many quarts are there in 8 pints?
24. How many quarts are there in 12 pints?
25. How many gallons are there in 4 quarts?
26. How many gallons are there in 12 quarts?
27. How many gallons are there in 8 quarts?
28. In 9 quarts there are —— gallons and —— quarts.
29. In 7 quarts there are —— gallons and —— quarts.
30. In 11 pints there are —— quarts and —— pints.
31. In 9 gills there are —— pints and —— gills.

1. Jennie is now 12 years old. How old was she 7 years ago?

2. John found 4 eggs in one nest, 3 eggs in another, and 5 in another. John found ———— eggs in all.

3. How many cents are 5 cents, and 3 cents, and 2 cents, and 1 cent?

4. If Helen pays 8 dollars for a fur cape, and 4 dollars for a music-box, what will both cost her?

5. 7 trees are on one side of a street, and 5 on the other side. There are ———— trees on the street.

6. William got 6 credit marks on Monday, and 6 more on Tuesday. How many did he get on both days?

7. George picked 12 peaches from a tree, and gave 3 of them to a little sick boy. How many did he have left?

8. Joseph picked 5 quarts of blackberries, and his brother 7 quarts; how many quarts did both pick?

9. If an orange costs 5 cents and a lemon 4 cents, how much will both cost?

10. Henry gave 4 cents for an orange, and 3 cents for a pear, and 2 cents for an apple; how many cents did he give for all?

11. Mr. Smith worked 11 hours each day. His son worked 7 hours. Mr. Smith worked ———— hours more than his son.

12. Herbert had 12 cents, and his brother had half as many. Herbert had ———— cents more than his brother.

13. Peter had 9 cents, and Charles had $\frac{1}{3}$ as many. Charles had ———— cents. Together they had ———— cents.

14. A boy had 6 hens, and bought 6 more. He then had ———— hens.

15. James is 12 years old, and his brother is 7 years younger. The brother is ———— years old.

16. What number must be added to 5 to make 12?

1. If 1 pencil costs 2 cents, how many pencils can you buy for 12 cents?

2. If 1 apple costs 2 cents, how many apples can you buy for 10 cents?

3. If one box of butter costs 3 dollars, how many boxes of butter can you buy for 9 dollars?

4. If silk costs 3 dollars a yard, how many yards can you buy for 12 dollars?

5. If one peach costs 4 cents, how many peaches can you buy for 12 cents?

6. If eggs are 2 cents each, how much will 6 eggs cost?

7. If one orange costs 3 cents, how much will 4 oranges cost?

8. If one lamp costs 2 dollars, how many lamps can you buy for 8 dollars?

9. If I pay a cent for 3 little flags, how many flags can I buy for 4 cents?

10. How many 2-cent postage stamps can I buy for a dime?

11. At 2 dimes each, how many books can I buy for 8 dimes?

12. At 3 cents each, how many melons can I buy for 12 cents?

13. If a pint of berries costs 4 cents, what will 1 quart and 1 pint cost?

14. If 1 apple costs 5 cents, 2 apples will cost how many cents?

15. If 1 apple costs 3 cents, what will 3 apples cost?

16. If 1 apple costs 4 cents, two apples will cost how many cents?

17. How many quarts are there in a gallon and a half?

18. How many gallons are there in 20 quarts?

19. If I should walk 3 miles each hour, in ———— hours I can walk 12 miles.

1. There are 12 months in a year.

2. The names of the months are : January, February, March, April, May, June, July, August, September, October, November, December.

3. Write the names of the months of the year.

4. December, January, and February are called the winter months. What part of the whole year is the winter months?

5. March, April, and May are called spring months. What part of the whole year is the spring months?

6. June, July, and August are called summer months. What part of the whole year is, the summer months?

7. September, October, and November are called fall or autumn months. What part of the whole year is the autumn months?

8. Write the names of the seasons.

9. Write the names of the spring months.

10. Write the names of the summer months.

11. Write the names of the autumn months.

12. Write the names of the winter months.

13. Copy and learn : —
Jan. stands for January.   Oct. stands for October.
Feb. stands for February.   Nov. stands for November.
Aug. stands for August.   Dec. stands for December.
Sept. stands for September.

14. Write the name of the present month.

15. How many months in $\frac{1}{2}$ of a year?

16. What month will it be 3 months from now?

17. What season will it be 4 months from now?

18. How many months from January to October?

19. How many months from April to July?

20. In what month is your birthday?

21. How many months in $\frac{1}{3}$ of a year?

22. How many months in $\frac{1}{4}$ of a year?

(Review page 4.)

Take your foot-rule, and find how many inches there are in a foot. Take the yard-stick, and find out how many feet there are in a yard.

Copy and fill blanks : —

— inches make one foot.   in. stands for inch or inches.

— feet make one yard.   ft. stands for foot or feet.

yd. stands for yard or yards.

1. How many inches are there in a foot?
2. How many feet are there in a yard?
3. How many feet are there in 3 yards?
4. How many feet are there in 4 yards?
5. How many feet are there in 2 yards?
6. How many feet are there in 12 inches?
7. How many yards are there in 3 feet?
8. How many yards are there in 9 feet?
9. How many yards are there in 6 feet?
10. How many yards are there in 12 feet?
11. In 11 feet there are ——— yards and ——— feet.
12. In 10 feet there are ——— yards and ——— feet.
13. In 5 feet there are ——— yards and ——— feet.
14. In 7 feet there are ——— yards and ——— feet.
15. In 4 feet there are ——— yards and ——— feet.
16. In 8 feet there are ——— yards and ——— feet.
17. If a square measures 12 in. on a side, how many feet long is each side? How many feet is it round the square?
18. Take the yard-stick, and draw a line a yard long. How many feet long is this line?
19. Draw a square yard. How many feet on each side of the square? How many feet round the square?
20. A string is 11 ft. long. How many pieces each 1 yd. long can be cut from it? How many feet are left over?

In finding the area of rectangular figures, do not teach the pupils the usual rule. The area should be discovered by each pupil from observation.

1. Draw a line 1 foot long, and divide it into 12 equal parts. How long is one of these parts?

2. What part of a foot is 6 inches? 4 inches? 3 inches?

3. How many inches is $\frac{1}{3}$ of a foot? $\frac{1}{2}$ of a foot? $\frac{1}{4}$ of a foot?

4. What part of a yard is a foot?

5. Draw a square foot; a square yard.

6. Draw an oblong that shall contain 12 square feet.

7. How long is your oblong? How wide is it?

8. Make another different oblong that shall contain 12 square feet. How long and how wide is it?

9. Cut out an oblong that is 4 inches long and 3 inches wide. How many square inches in it?

10. Cut out an oblong that is 6 inches long and 2 inches wide. How many square inches in it?

11. Mark on the board a figure 2 feet long and 2 feet wide. How many square feet in the figure?

12. Make another figure 1 yard long and 1 yard wide. How many square yards are in it? Find by measuring how many square feet are in it.

13. What is the area of a flower-bed 1 yard long and 3 feet wide? Prove it by drawing the figure on the board.

14. Draw a rectangle 6 inches long and 2 inches wide. Divide it into equal squares.

15. Make a figure $\frac{1}{2}$ of a foot long, and $\frac{1}{4}$ of a foot wide.

16. Draw a right-angled triangle, the sides of which are 3 inches, 4 inches, and 5 inches. How many inches is it round it?

17. Draw a rectangle 4 inches long and 3 inches wide. Divide this rectangle into two triangles.

Copy and learn : —

12 single things or units make one dozen.

doz. stands for dozen.

1. One half of a dozen apples is ——— apples.
2. One half of a dozen eggs is ——— eggs.
3. One third of a dozen hens is ——— hens.
4. One fourth of a dozen pears is ——— pears.
5. Half a dozen eggs and 2 eggs are ——— eggs.
6. Half a dozen eggs and 4 eggs are ——— eggs.
7. A dozen apples less 5 apples are ——— apples.
8. A dozen apples less 1 apple are ——— apples.
•9. 10 cherries are ——— cherries less than a dozen.
10. When apples are worth 2 cents each, how much is ½ doz. worth?
11. If apples are worth 12 cents a dozen, what part of a dozen can you buy for 6 cents?
12. If pears cost 10 cents a dozen, 6 pears will cost ——— cents.
13. 6 eggs is what part of a dozen?
14. 4 eggs is what part of a dozen?
15. 3 eggs is what part of a dozen?
16. Which costs more, a dozen lemons at a cent each, or a half-dozen oranges at 2 cents each?
17. Jennie's mother divided a dozen cherries among Jennie and her two brothers. How many cherries did each have?
18. If pens cost 8 cents a dozen, how much will a dozen and a half cost?
19. If you find 4 eggs every day, how many days will it take you to find a dozen eggs?
20. 9 eggs are ——— eggs less than a dozen.
21. A boy bought a dozen apples for 8 cents, and sold them for 12 cents. How much did he gain on a dozen? How much did he gain on ½ a dozen?
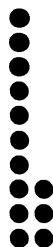
1.

$3 + 10$ or $10 + 3 = 13$
$4 + \ \ 9$ or $\ \ 9 + 4 = 13$
$5 + \ \ 8$ or $\ \ 8 + 5 = 13$
$6 + \ \ 7$ or $\ \ 7 + 6 = 13$

2.

$X = 10$
$XI = 11$
$XII = 12$
$XIII = 13$

$10 + 3 = 13$

3.

$6 + 7 = ?$
$7 + 3 = ?$
$6 + 2 = ?$

4.

$12 - 4 = ?$
$13 - 9 = ?$
$11 - 5 = ?$
$9 - 7 = ?$
$10 - 6 = ?$

5.

$13 - \ \ 7 = ?$
$13 - 11 = ?$
$13 - \ \ 9 = ?$
$13 - 12 = ?$
$13 - \ \ 8 = ?$

6.

$13 - ? = 4$
$12 - ? = 7$
$11 - ? = 8$
$10 - ? = 3$
$9 - ? = 4$

7.

$? - \ \ 6 = 7$
$? - \ \ 5 = 7$
$? - \ \ 8 = 4$
$? - \ \ 9 = 1$
$? - 11 = 2$

8.

$13 - 2 = ?$
$13 - 3 = ?$
$13 - 4 = ?$
$13 - 5 = ?$
$13 - 6 = ?$

9.

$12 \div 6 = ?$
$12 \div 4 = ?$
$12 \div 3 = ?$
$12 \div 2 = ?$
$10 \div 5 = ?$

10.

$9 + 4 = ?$
$8 + 3 = ?$
$6 + 7 = ?$
$5 + 6 = ?$
$7 + 4 = ?$

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
1	3	2	3	4	5	2	2	6	7
4	2	3	2	1	1	2	3	5	4
2	1	2	3	2	3	4	4	2	1

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
2	4	2	3	1	2	2	1	2	3
1	1	2	1	1	2	1	2	2	5
2	2	1	2	4	4	6	3	5	3
3	2	4	4	6	4	2	4	3	2

1. Add:

7	1	1	7	2	5	4	3	1	4
4	3	0	3	4	5	5	9	6
0	2	3	2	5	2	3	3	0	2
2	4	5	1	2	1	0	2	3	1

2. Subtract:

9	12	11	13	8	9	11	10	10	13
7	7	8	8	7	8	7	8	7	9

3.

9	5	4	7	9	8	9	12	11	9
1	2	3	4	5	6	2	6	5	4

4.

10	12	12	8	13	6	12	11	9	7
9	3	9	4	6	2	5	3	6	5

5.

12	13	12	10	13	12	11	9	7	8
8	7	4	5	5	6	6	3	2	4

6. Multiply:

2	4	6	4	5	2	3	7	3	3	8	10
2	2	2	3	2	4	4	1	3	2	1	0

7. Divide: 2)10   3)12   3)9   2)6   4)8

                   4)12   2)12   2)8   6)12   5)10

8.

$12 - 3 = ?$	$13 - 9 = ?$	$10 - 4 = ?$	$12 - 4 = ?$
$13 - 4 = ?$	$9 - 6 = ?$	$12 - 7 = ?$	$13 - 5 = ?$
$7 - 2 = ?$	$12 - 5 = ?$	$13 - 6 = ?$	$11 - 7 = ?$
$12 - 6 = ?$	$13 - 3 = ?$	$13 - 8 = ?$	$13 - 6 = ?$

9.

$2 \times 2 = ?$	$3 \times 3 = ?$	$4 \times 3 = ?$	$2 \times 3 = ?$
$2 \times 6 = ?$	$3 \times 1 = ?$	$4 \times 1 = ?$	$2 \times 4 = ?$
$5 \times 2 = ?$	$3 \times 4 = ?$	$4 \times 2 = ?$	$6 \times 2 = ?$

1. What have you seen measured with a yard measure?

2. What have you seen at home that was 1 yard long?

3. Find something in the room that is 1 yard long.

4. Draw a horizontal line that is 1 yard long. Do not use a ruler.

5. Measure your line with a foot rule, and see how many feet you have. How many should you have in 1 yard?

6. If a table is 8 feet long and 5 feet wide, how many feet is it $\frac{1}{2}$ way around the table?

7. 13 months are how many months more than a year?

8. 13 inches are how many inches more than 1 foot?

9. What number must you put with 8 to make 13?

10. 13 is how many more than 7?

11. 13 cents are how much more than a dime?

12. 13 feet are how much more than 3 yards?

13. 13 quarts are how much more than 3 gallons?

14. In five quarts there are how many pints?

15. In 3 gallons and a quart there are how many quarts?

16. A quart is how many times as much as a pint?

17. A quart is how many times as much as a gill?

18. A long ladder has 13 steps, and a short one has 6; how many more steps has the long ladder than the short one?

19. If you study 2 hours each school day, how many hours do you study in a week?

20. Four times 3 are how many less than 13?

21. To 5 add 6, take away 3, divide by 2, add 7, take away 1, divide by 5, add 1, multiply by 3, name your result.

22. Multiply 2 by 3, multiply by 2, divide by 4, add 8, take away 1, add 2, divide by 6, add 2, write your result.

10 cents make a dime.
10 dimes make a dollar.
ȼ or ct. stands for cent or cents.
$ stands for dollar or dollars.

1. Appoint a store-keeper; when the store-keeper makes a mistake in change choose a new one.

2. Let each pupil buy something and count his change. Let each pupil decide for himself what he will buy.

3. Charles may buy a pen holder for 8 cents.

4. Mary may buy a quart of milk at 4 cents a pint.

5. Bessie may buy 5 pencils at 2 cents each.

6. Clara may buy a spool of thread for 5 cents, and 2 papers of pins at 4 cents a paper.

7. George may buy 6 pints of milk at 2 cents a pint.

8. John may buy 12 gills of berries at 4 cents a pint.

9. Belle may buy 4 oranges at 3 cents each, and a stick of candy for 1 cent.

10. Dick may buy 5 2-cent stamps and 2 1-cent stamps.

11. Clara may buy 3 feet of tape at 6 cents a yard.

12. Julia may buy 4½ yards of ribbon at 2 cents a yard.

13. Nellie may buy 4 yards of braid at 3 cents a yard.

14. Tom may buy 5 cents' worth of peaches and apples. The peaches are marked, " Four for 5 cents," and the apples, " Six for 5 cents." How many of each can Tom buy ?

15. Dick may buy 3 cents' worth of candy, 4 cents' worth of paper, and a 5-cent ball.

16. Rose may buy 6 yards of tape, when 3 yards cost 6 cents.

17. Harry may buy a dozen lemons, when 6 lemons cost 5 cents.

18. Frank may buy ¼ of a dozen apples at 3 cents each.

Note. — Give the pupils toy money, but nothing larger than dimes.

Here is a picture of a quart, a peck, a half-bushel measure, and a bushel basket.

1. Take the quart measure, and fill it with sawdust. Pour it into the next larger measure, the peck. Find out how many quarts will fill the peck.

2. In the same way find out how many pecks will fill the half-bushel. Then how many will fill the bushel.

3. Copy on your paper, and fill blanks:

— pints make 1 quart.

— quarts make 1 peck (pk.).

— pecks make 1 bushel (bu.).

4. Learn this table.

5. Write the abbreviations for pint and quart.

6. Have you ever seen these measures before?

7. What different things are measured by them?

8. How many quarts of corn will you have, if you have 1 peck and 2 quarts?

9. How many bushels are there in 12 pecks?

10. How many pecks are there in 12 quarts?

11. How many bushels are there in 13 pecks? How many quarts remaining?

12. How many pecks are there in 2 bu. and 2 pk.?

13. How many pecks are there in 3 bu. and 1 pk.?

14. How many quarts are there in $1\frac{1}{2}$ pecks?

15. How many quarts are there in $\frac{1}{4}$ of a peck?

16. How many quarts are there in 1 peck and 5 qt.?

17. How many pecks are there in 10 quarts?

18. How many bushels are there in 10 pecks?

19. 9 quarts are how many quarts more than a peck?

20. 13 pints are ——— quarts and ——— pints.

21. How many quarts are 5 pints and 1 pint?

Make a problem, and then fill the blanks with suitable words. Illustration: Mary had 8 peaches, and gave her brothers and sisters 6, so she had 2 left; 8 peaches less 6 peaches are 2 peaches.

  1. Eight   ( ) less six   ( ) are —— ( ).
  2. Nine   ( ) and four ( ) are —— ( ).
  3. Thirteen ( ) less nine ( ) are —— ( ).
  4. Seven   ( ) and six   ( ) are —— ( ).
  5. Thirteen ( ) less ten   ( ) are —— ( ).
  6. Twelve ( ) less eight ( ) are —— ( ).
  7. Eight   ( ) and five ( ) are —— ( ).
  8. Six   ( ) and three ( ) are —— ( ).
  9. Five   ( ) and seven ( ) are —— ( ).
10. Eleven ( ) less five ( ) are —— ( ).
11. Twelve ( ) less six   ( ) are —— ( ).
12. Eight   ( ) and three ( ) are —— ( ).
13. Four   ( ) and seven ( ) are —— ( ).
14. Three   ( ) and nine ( ) are —— ( ).
15. Five   ( ) and five ( ) are —— ( ).
16. Eleven ( ) less four ( ) are —— ( ).
17. Twelve ( ) less seven ( ) are —— ( ).
18. Nine   ( ) less three ( ) are —— ( ).
19. Nine   ( ) and three ( ) are —— ( ).
20. Eight   ( ) less three ( ) are —— ( ).
21. Thirteen ( ) less seven ( ) are —— ( ).
22. Six   ( ) and five ( ) are —— ( ).
23. Seven   ( ) and three ( ) are —— ( ).
24. Twelve ( ) less eight ( ) are —— ( ).
25. Eleven ( ) less nine ( ) are —— ( ).
26. Ten   ( ) and three ( ) are —— ( ).
27. Ten   ( ) less six   ( ) are —— ( ).
28. Twelve ( ) less four ( ) are —— ( ).
29. Six   ( ) and six   ( ) are —— ( ).
30. Eight   ( ) and four ( ) are —— ( ).

1. If 4 bushels of wheat cost 8 dollars, what will 1 bushel cost?

2. At 2 dollars a peck, what will a bushel of grass-seed cost?

3. If 3 bushels of oranges cost 12 dollars, what will 1 bu. cost? What will 1 peck cost?

4. If 8 bushels of apples cost 8 dollars, what will a bushel cost? What will $\frac{1}{2}$ bu. cost?

5. If 5 bushels of apples cost 10 dollars, what will a bushel cost? What will $\frac{1}{2}$ bu. cost?

6. A man had a peck of apples, and sold 2 quarts of them. He had ——— quarts left?

7. A man had 12 quarts of walnuts, and sold a peck of them. He had ——— quarts left.

8. If a quart of peaches is worth 12 cents, a pint will be worth ——— cents.

9. John picked 7 quarts of berries, and George picked 6 quarts. How many quarts more than a peck did they both pick?

10. How much will 3 pints of peanuts cost at 8 cents a quart?

11. Two boys, Charles and Henry, went chestnutting. Charles gathered 6 quarts, and Henry 5 quarts. How many quarts did both gather?

12. How many quarts less than a peck did Charles gather? How many quarts less did Henry gather?

13. How many quarts less than a peck and a half did both gather?

14. If a peck of peas is worth 12 cents, how much is one half of a peck worth?

15. At 12 cents a peck, how much are 4 quarts of peas worth?

16. At 12 cents a peck, how much are 2 quarts of peas worth?

1.

$10 + 4$ or $4 + 10 = 14$

$9 + 5$ or $5 + 9 = 14$

$8 + 6$ or $6 + 8 = 14$

$7 + 7 = 14$

$7 \times 2 = 14$

$10 + 4 = 14$

2.

$XIV = 14$

3.

$6 + 7 = ?$

$5 + 8 = ?$

$7 + 7 = ?$

$9 + 5 = ?$

4.

$4 + 8 = ?$

$6 + 5 = ?$

$6 + 6 = ?$

$5 + 5 = ?$

$11 + 3 = ?$

5.

$? + 7 = 14$

$? + 9 = 14$

$? + 8 = 14$

$? + 4 = 14$

$? + 6 = 14$

6.

$? + 5 = 14$

$? + 10 = 14$

$? + 13 = 14$

$? + 11 = 14$

$? + 10 = 14$

7.

$14 - 7 = ?$

$14 - 9 = ?$

$14 - 10 = ?$

$14 - 6 = ?$

$14 - 4 = ?$

8.

$14 - 11 = ?$

$14 - 5 = ?$

$14 - 12 = ?$

$14 - 8 = ?$

$14 - 3 = ?$

9.

$13 - 8 = ?$

$12 - 9 = ?$

$11 - 6 = ?$

$13 - 7 = ?$

$9 - 6 = ?$

10.

$10 - 6 = ?$

$11 - 7 = ?$

$12 - 8 = ?$

$11 - 5 = ?$

$12 - 6 = ?$

11.

$2 \times 2 = ?$

$4 \times 2 = ?$

$6 \times 2 = ?$

$7 \times 2 = ?$

12.

$3 \times 3 = ?$

$3 \times 4 = ?$

$3 \times 2 = ?$

$5 \times 2 = ?$

13.

$2 \times 1 = ?$

$3 \times 1 = ?$

$4 \times 1 = ?$

$5 \times 1 = ?$

14.

$6 \times 1 = ?$

$4 \times 3 = ?$

$2 \times 7 = ?$

$2 \times 4 = ?$

15.

$14 \div 7 = ?$

$14 \div 2 = ?$

$12 \div 6 = ?$

$12 \div 4 = ?$

16.

$12 \div 3 = ?$

$12 \div 2 = ?$

$9 \div 3 = ?$

$10 \div 5 = ?$

17.

$4 \div 4 = ?$

$6 \div 6 = ?$

$8 \div 8 = ?$

$9 \div 9 = ?$

18.

$13 \div 2 = ?$

$8 \div 4 = ?$

$13 \div 6 = ?$

$6 \div 3 = ?$

1. Emily's dress cost 13 dollars, and her hat 3 dollars; how much more did the dress cost than the hat?

2. Mary has 12 raisins; if she eats 4 of them, how many will she have left?

3. Mr. Smith has 13 hogs; if he sells 4 of them to a drover, how many will he have left?

4. Alice had 14 figures on her slate, and then erased 5 of them; how many figures were left?

5. Jane is 14 years old, and her brother is 6 years younger; how old is her brother?

6. Alice is 7 years old, and her brother is 7 years older; how old is her brother?

7. Mary is 14 years old, and Kate is 8; what is the difference between their ages?

8. Two boys, James and Robert, each bought 7 marbles. James gave Robert 4 of his; how many had each then?

9. In 2 weeks there were 5 stormy days. How many pleasant days were there?

10. How many cents in 4 two-cent pieces and a five-cent piece?

11. If you spend 3 cents for candy, and give the storekeeper a dime, how much change will you get back?

12. Frank gave 3 cents for an orange, and had 10 cents left. How much did he have before he bought the orange?

13. Lewis bought a watch for 8 dollars, and sold it for 10 dollars; how much did he gain?

14. Mr. Day bought a barrel of flour for 5 dollars, and sold it for 2 dollars more than he gave for it. For how much did he sell it?

15. A cooper made 14 buckets, and sold 5 of them; how many buckets had he left?

16. Sarah had 14 apples, and gave $\frac{1}{2}$ of them to Jane; how many apples did Jane receive?

1. In 14 there are how many twos ?

2. In 14 there are how many sevens?

3. 14 is how many times 2 ? 7 ? 14 ?

4. 12 is how many times 2 ? 3 ? 4 ? 6 ?

5. At 3 cents a pint a quart and a pint of milk will cost ——— cents.

6. If 2 men can cut a piece of wheat in 4 days, how many days will it take 1 man to cut it ?

7. How much will six eggs cost at 14 cents a dozen ?

8. What will 2 quarts of vinegar cost at 7 cents a quart ?

9. If a can holds 3 gal., how many quarts must you pour into it before the can is full ?

10. If 1 orange is worth as much as 3 apples, how many apples are 4 oranges worth ?

11. George was sent to the store to buy 6 skeins of black thread; if each skein cost 2 cents, how much must George pay ?

12. If peaches are 3 cents each, how much will 4 cost ?

13. If 3 men can do a piece of work in 2 days, how many days will it take 1 man to do it ?

14. In $3\frac{1}{2}$ gal. there are how many quarts ?

15. A room is 4 yards and 1 foot long; how many feet long is it ?

16. James sold 2 quarts of berries at 5 cents a quart. How many cents did he receive ? He spent 2 cents for ginger-snaps. How much had he left ?

17. Among how many playmates can you divide 14 apples ? and how many apples will you have left if you give each 2 apples ? If you give each 3 apples ? 4 apples ? 5 apples ? 6 apples ? 7 apples ?

18. Add 8 and 5, subtract 6, multiply by 2, take away 5, divide by 3, multiply by 2, subtract 4, subtract 1, multiply by 7, subtract 3; write your result.

1. Copy and learn:
   7 days make 1 week.   12 months make 1 year.
2. How many days in 2 weeks?
3. How many months in $\frac{1}{4}$ of a year?
4. How many months in $\frac{1}{2}$ of a year?
5. How many seasons in a year?
6. How many months in a season?
7. Name the seasons.
8. Name the months in each season.
9. 6 months is what part of a year?
10. 4 months is what part of a year?
11. 3 months is what part of a year?
12. 13 days are how many days less than 2 weeks?
13. How many months in $\frac{1}{3}$ of a year?
14. How many days are there from Monday morning till Thursday morning?
15. If you go to school 10 months every year, how many months of vacation have you?
16. 14 months are how many months more than a year?
17. If a man earns 12 dollars a week, how much is that for every working day?
18. If a boy earns 12 dollars a month, how much will he earn in $\frac{1}{2}$ a month?
19. Write the name of to-day, and of every day for a week.
20. Write the name of this month, and of every month from now till the end of the year.
21. How many months from March 1 to August 1?
22. How many months from June 1 to Feb. 1?
23. How many days is it from Wednesday of this week till Friday of next week?
24. In which month is Christmas?

1. 12   11   9   13   3   8   13   7   10   12
    1   2   5   7   1   1   8   5   9   2

2.   6   12   7   14   9   14   14   9   9   10
    2   6   5   8   4   2   5   8   6   3

3. 11   6   11   6   9   14   14   14   11   6
    3   3   6   5   2   9   6   8   7   2

4. 11   12   14   14   5   14   12   6   11   14
    8   4   6   7   2   4   7   6   5   5

5. 13   12   14   10   10   13   9   14   12   11
    2   3   4   2   5   6   1   8   7   5

6.   8   13   10   10   7   12   14   12   14   10
    5   4   7   3   2   8   2   9   1   4

7. 14   13   9   13   7   8   11   7   12   12   11
    3   5   3   9   7   7   3   4   5   4   4

Place this wheel on the blackboard.   Substitute any
number for 14 for additional practice.

$5 + 10 = 15,$ or $10 + 5 = 15$ $XV = 15$
$6 + \ \ 9 = 15,$ or $\ \ 9 + 6 = 15$ $5 \times 3 = 15$
$7 + \ \ 8 = 15,$ or $\ \ 8 + 7 = 15$ $3 \times 5 = 15$

$10 + 5 = 15$

1.

$12 + 3 = ?$
$10 + 5 = ?$

2.

$7 + 6 = ?$
$7 + 7 = ?$
$8 + 6 = ?$
$5 + 6 = ?$
$11 + 3 = ?$

3.

$6 + 4 = ?$
$7 + 5 = ?$
$8 + 4 = ?$
$6 + 7 = ?$
$9 + 3 = ?$

4.

$10 + \ \ 4 = ?$
$11 + \ \ 2 = ?$
$9 + \ \ 5 = ?$
$8 + \ \ 7 = ?$
$2 + 13 = ?$

5.

$7 + ? = 14$
$9 + ? = 15$
$4 + ? = 13$
$6 + ? = 12$
$9 + ? = 11$

6.

$7 + ? = 13$
$8 + ? = 12$
$5 + ? = 15$
$7 + ? = 12$
$6 + ? = 15$

7.

$9 + ? = 14$
$8 + ? = 13$
$7 + ? = 11$
$6 + ? = 10$
$5 + ? = \ \ 9$

8.

$12 + ? = 15$
$11 + ? = 14$
$9 + ? = 12$
$10 + ? = 15$
$7 + ? = 15$

9.

$? + 5 = 11$
$? + 6 = 15$
$? + 7 = 14$
$? + 8 = 12$
$? + 9 = 10$

10.

$? + \ \ 4 = 15$
$? + 10 = 12$
$? + 12 = 14$
$? + 13 = 15$
$? + \ \ 4 = \ \ 9$

11.

$? + 7 = 15$
$? + 8 = 15$
$? + 9 = 15$
$? + 6 = 15$
$? + 5 = 15$

12.

$? + 2 = 12$
$? + 3 = 11$
$? + 3 = 15$
$? + 6 = 14$
$? + 4 = \ \ 8$

13.

$3 + 12 = ?$
$4 + 11 = ?$
$7 + \ \ 8 = ?$
$6 + \ \ 9 = ?$
$5 + 10 = ?$

·14.

$15 \div 5 = ?$
$15 \div 3 = ?$
$14 \div 7 = ?$
$14 \div 2 = ?$
$12 \div 6 = ?$

15.

$12 \div 4 = ?$
$12 \div 3 = ?$
$12 \div 2 = ?$
$10 \div 5 = ?$
$10 \div 2 = ?$

16.

$9 \div 3 = ?$
$8 \div 4 = ?$
$8 \div 2 = ?$
$6 \div 3 = ?$
$6 \div 2 = ?$

Add:

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
4	8	9	6	10	8	9	7	7	6
7	3	2	5	2	6	6	8	7	4

Add:

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
5	4	7	4	6	5	4	7	7	6
2	6	5	4	7	5	6	5	4	4
5	2	2	6	2	5	2	1	2	4

Add:

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
4	5	6	1	7	2	4	9	8	7
2	4	7	2	1	6	8	5	3	7
7	3	1	8	3	4	2	1	2	0
1	2	1	2	3	3	1	0	1	1

31.

$7 + 8 = ?$
$15 - 9 = ?$
$15 \div 5 = ?$
$6 + 9 = ?$

32.

$15 - 10 = ?$
$13 + 2 = ?$
$15 \div 3 = ?$
$15 - 11 = ?$

33.

$15 - 12 = ?$
$15 - 7 = ?$
$11 + 4 = ?$
$15 - 6 = ?$

34.

$5 \times 3 = ?$
$15 + 15 = ?$
$5 + 10 = ?$
$15 - 8 = ?$

Subtract:

35.	36.	37.	38.	39.	40.	41.	42.	43.	44.
15	14	12	7	9	11	15	15	14	13
8	7	6	4	5	5	10	9	8	7

45.

$5 \times 3 = ?$
$6 \times 2 = ?$
$7 \times 2 = ?$
$3 \times 3 = ?$

46.

$5 \times 2 = ?$
$3 \times 4 = ?$
$4 \times 3 = ?$
$3 \times 5 = ?$

47.

$2 \times 2 = ?$
$3 \times 2 = ?$
$2 \times 7 = ?$
$2 \times 5 = ?$

48.

$6 \times 1 = ?$
$2 \times 6 = ?$
$4 \times 2 = ?$
$3 \times 1 = ?$

(See note on page 37.)

1. Four (——) and three (——) are (——).
2. Nine (——) and two (——) are (——).
3. Eight (——) less five (——) are (——).
4. Eleven (——) less nine (——) are (——).
5. Twelve (——) less six (——) are (——).
6. Six (——) and seven (——) are (——).
7. Seven (——) and seven (——) are (——).
8. Eight (——) and six (——) are (——).
9. Nine (——) and four (——) are (——).
10. Eight (——) and seven (——) are (——).
11. Ten (——) and five (——) are (——).
12. Fifteen (——) less nine (——) are (——).
13. Fourteen (——) less eight (——) are (——).
14. Three (——) and twelve (——) are (——).
15. Five (——) and nine (——) are (——).
16. Nine (——) and six (——) are (——).
17. Ten (——) and three (——) are (——).
18. Seven (——) and eight (——) are (——).
19. Twelve (——) less eight (——) are (——).
20. Eleven (——) less seven (——) are (——).
21. Seven (——) and four (——) are (——).
22. Six (——) and five (——) are (——).
23. Fifteen (——) less four (——) are (——).
24. Six (——) and four (——) are (——).
25. Fifteen (——) less six (——) are (——).
26. Fifteen (——) less thirteen (——) are (——).
27. Seven (——) and six (——) are (——).
28. Nine (——) and three (——) are (——).
29. Five (——) and seven (——) are (——).
30. Thirteen (——) less eight (——) are (——).
31. Four (——) and nine (——) are (——).
32. Twelve (——) less nine (——) are (——).
33. Thirteen (——) less seven (——) are (——).

1. Take 15 one-inch sticks. How many triangles can you make with the 15 sticks, using one stick on a side?

2. How many squares can you make? How many sticks are left over?

3. What can you make with the sticks left over?

4. Make as many rectangles as you can that are 2 inches long and 1 inch wide. How many have you made? What can you make with what is left?

5. Make a 3-inch square. What can you make with the sticks that are left?

6. Guess at the height of your desk. Measure it. How near did you guess?

7. From a string 15 feet long cut off 5 yards. How much is left?

8. Make 10 columns of figures, 3 figures in each column, the sum of which shall in each column be 15.

9. Draw a rectangle 15 inches long and 1 inch wide. How many square inches does it contain?

10. If a man who had 15 sheep should sell $\frac{1}{3}$ of them, how many would he have left?

11. What 5 equal numbers make 15?

12. George may draw a line 7 feet long; Charles may draw a line 1 foot longer. How long are both the lines?

13. Five triangles have how many corners?

14. How many more corners or angles have 5 triangles than 3 squares?

15. If it takes 3 yards of ribbon to trim each hat, how many yards of ribbon will it take to trim 5 hats?

16. How many parts has a clover leaf? How many parts have 5 clover leaves?

17. 15 cents will buy how many lead pencils, if 1 pencil costs 3 cents?

18. If I have 15 chestnuts, to how many boys can I give 5 each?

(Review pages 24, 29.)

1. What measure do you use in measuring milk?

2. Write the table.

3. Write the abbreviations for gill, pint, quart, gallon.

4. Make 4 examples, using the words: gills, pints, quarts, gallons.

5. How many 2-quart pails will it take to hold 2 gallons?

6. How many pint pails will it take to hold a gallon and a half?

7. Fill out the blanks:

1 pint = — gills. $1\frac{1}{4}$ feet = — inches.
3 gallons = — quarts.   15 feet = — yards.
$3\frac{1}{2}$ quarts = — pints.   4 yards = — feet.
10 gills = — quarts.   15 inches = — feet.

8. A wasp has 2 pairs of wings, a large pair and a small pair. How many wings has a wasp? How many have 3 wasps?

9. What will 2 quarts and a pint of milk cost, at 6 cents a quart?

10. What will 3 yards of cloth cost at $5 a yard?

11. If Grace knits 5 rows a day, how many rows will she knit in 3 days?

12. If a man had $11, and should buy some corn for $5, how much money would he have left?

13. If it is 10 miles to my home, how many miles is it there and half way back?

14. How many cents must you put with 9 cents to make 15 cents?

15. Take a string 5 inches long; how many times must you cut it to make 5 pieces 1 inch long?

16. Into how many pieces shall I cut a string 10 inches long, if I cut it 9 times? How long will each piece be if they are of equal length?

1. 9×1 and (——) = 15.
2. 5×3 and (——) = 15.
3. 7×2 and (——) = 15.
4. 3×3 and (——) = 15.
5. 6×2 and (——) = 15.
6. 12×1 and (——) = 15.
7. 4×3 and (——) = 15.
8. 2×5 and (——) = 15.
9. 12 is contained in 15 (——) times and (——) over.
10. 6 is contained in 15 (——) times and (——) over.
11. 8 is contained in 15 (——) times and (——) over.
12. 10 is contained in 15 (——) times and (——) over.
13. 9 is contained in 15 (——) times and (——) over.
14. 4 is contained in 15 (——) times and (——) over.
15. 2 is contained in 15 (——) times and (——) over.
16. 11 is contained in 15 (——) times and (——) over.
17. 7 is contained in 15 (——) times and (——) over.
18. 5 is contained in 15 (——) times and (——) over.
19. 13 is contained in 15 (——) times and (——) over.
20. 3 is contained in 15 (——) times and (——) over.
21. 14 is contained in 15 (——) times and (——) over.
22. 15 is (——) more than 10.
23. 15 is (——) more than 7.
24. 15 is (——) more than 8.
25. 15 is (——) more than 11.
26. 15 is (——) more than 6.
27. 15 is (——) more than 9.
28. 15 is (——) more than 5.
29. 15 is (——) more than 4.
30. 15 is (——) more than 12.
31. 9 is (——) less than 15.
32. Sight addition :

7	8	6	7	8	4	8	9	4	6
7	5	9	6	7	9	6	5	9	5

$6 + 10$, or $10 + 6 = 16$ XVI $= 16$
$7 + 9$, or $9 + 7 = 16$ $8 \times 2 = 16$
$8 + 8$ $= 16$ $4 \times 4 = 16$

$10 + 6 = 16$

1.

$4 + 12 = ?$
$10 + 6 = ?$

2.

$7 + 7 = ?$
$9 + 7 = ?$
$8 + 7 = ?$
$9 + 6 = ?$
$8 + 5 = ?$

3.

$6 + 7 = ?$
$7 + 5 = ?$
$6 + 6 = ?$
$5 + 8 = ?$
$9 + 5 = ?$

4.

$5 + 10 = ?$
$11 + 4 = ?$
$10 + 4 = ?$
$8 + 6 = ?$
$9 + 3 = ?$

5.

$6 + ? = 13$
$8 + ? = 16$
$7 + ? = 15$
$5 + ? = 10$
$9 + ? = 13$

6.

$10 + ? = 16$
$4 + ? = 15$
$3 + ? = 13$
$9 + ? = 12$
$6 + ? = 11$

7.

$15 + ? = 16$
$14 + ? = 15$
$12 + ? = 14$
$10 + ? = 13$
$9 + ? = 12$

8.

$8 + ? = 16$
$7 + ? = 16$
$9 + ? = 16$
$6 + ? = 16$
$5 + ? = 16$

9.

$? + 10 = 15$
$? + 9 = 16$
$? + 8 = 14$
$? + 7 = 16$

10.

$? + 8 = 16$
$? + 9 = 14$
$? + 6 = 15$
$? + 5 = 9$

11.

$? + 14 = 16$
$? + 15 = 16$
$? + 13 = 16$
$? + 12 = 16$

12.

$? + 5 = 16$
$? + 4 = 12$
$? + 9 = 16$
$? + 10 = 15$

13.

$16 - 14 = ?$
$16 - 12 = ?$
$16 - 10 = ?$
$16 - 8 = ?$
$16 - 11 = ?$
$16 - 7 = ?$

14.

$16 - ? = 4$
$16 - ? = 6$
$16 - ? = 8$
$16 - ? = 10$
$16 - ? = 9$
$16 - ? = 7$

15.

$? - 7 = 9$
$? - 8 = 8$
$? - 9 = 7$
$? - 6 = 10$
$? - 7 = 8$
$? - 9 = 4$

16.

$7 + 9 = ?$
$8 + 8 = ?$
$5 + 11 = ?$
$6 + 7 = ?$
$2 + 14 = ?$
$6 + 10 = ?$

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
5	6	4	5	3	2	3	4	1	7
4	7	8	5	4	4	5	6	5	5
3	1	2	5	5	6	7	3	7	2
2	2	1	1	2	3	1	2	3	1

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
5	4	7	1	9	8	7	5	4	3
6	7	6	0	1	0	6	5	4	3
3	1	0	9	2	2	0	5	4	3
2	4	2	5	0	4	2	1	4	5

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
3	4	1	2	6	5	3	2	3	2
5	3	9	6	7	4	6	3	5	3
2	1	3	3	1	3	1	4	4	4
6	8	2	5	2	3	4	2	2	2

31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
7	5	9	6	4	6	9	7	5	8
6	8	4	5	7	7	6	8	9	3

41.	42.	43.	44.	45.	46.	47.	48.	49.	50.
4	2	5	6	9	3	8	8	9	8
7	9	7	4	5	9	6	7	6	5

51.	52.	53.	54.	55.	56.	57.	58.	59.	60.
4	4	4	4	4	4	4	4	4	5
1	2	3	4	5	6	7	8	9	8

61.	62.	63.	64.	65.	66.	67.	68.	69.	70.
9	9	9	9	9	9	9	8	8	8
1	2	3	4	5	7	6	8	7	6

(See pages 24, 25.)

1. Fill blanks:
—— gills make 1 pint.
—— pints make 1 quart.
—— quarts make 1 gallon.

2. Copy and fill blanks:
—— days make 1 week.
—— months make 1 year.

3. Copy and fill blanks:

—— stands for gill.
—— stands for gallon.
—— stands for day.
—— stands for week.
—— stands for year.

4. How many gills are there in 2 quarts?

5. How many pints are there in 2 gallons?

6. Make 5 examples using gills, pints, quarts, or gallons.

7. Name 4 things that you could buy at a store where the storekeeper would use these measures.

8. In half a gallon of milk, how many quarts of milk?

9. If a pint of water weighs a pound, how much do 2 gallons weigh?

10. How many pint bottles will it take to hold 2 quarts of catsup?

11. How many gallons and quarts in 15 quarts? In 13 quarts? In 16 quarts?

12. 3 quarts is what part of a gallon?

13. How many quarts in $3\frac{1}{4}$ gallons?

14. If 4 gallons of varnish cost $16, what will 1 gallon cost?

15. At 3 cents a pint, what will $\frac{1}{2}$ a gallon of milk cost?

16. A milkman sold 3 quarts of milk to one man, 4 quarts to another, 5 quarts to another, and 8 pints to another. How many gallons of milk did he sell?

17. How many quarts of milk in 16 pints?

18. Sight addition:

7	8	9	6	7	8	7	6	7	5	9	8
9	8	5	7	8	5	7	5	6	9	7	4

Drill orally till the answers can be given rapidly. For seat work copy the
examples neatly, and write the answers.

1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
1	3	5	7	9	10	2	4	6	8
1	1	1	1	1	1	1	1	1	1

11.	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**	**18.**	**19.**	**20.**
10	8	6	4	2	9	7	5	12	3
2	2	2	2	2	2	2	2	2	2

21.	**22.**	**23.**	**24.**	**25.**	**26.**	**27.**	**28.**	**29.**	**30.**
3	13	4	12	5	11	6	10	7	9
3	3	3	3	3	3	3	3	3	3

31.	**32.**	**33.**	**34.**	**35.**	**36.**	**37.**	**38.**	**39.**	**40.**
4	16	5	15	13	9	8	12	14	10
4	4	4	4	4	4	4	4	4	4

41.	**42.**	**43.**	**44.**	**45.**	**46.**	**47.**	**48.**	**49.**	**50.**
16	14	12	10	8	6	15	13	11	9
5	5	5	5	5	5	5	5	5	5

51.	**52.**	**53.**	**54.**	**55.**	**56.**	**57.**	**58.**	**59.**	**60.**
16	6	14	8	12	10	15	7	13	9
6	6	6	6	6	6	6	6	6	6

61.	**62.**	**63.**	**64.**	**65.**	**66.**	**67.**	**68.**	**69.**	**70.**
15	7	13	9	11	16	8	14	10	12
7	7	7	7	7	7	7	7	7	7

71.	**72.**	**73.**	**74.**	**75.**	**76.**	**77.**	**78.**	**79.**	**80.**
8	9	10	11	12	13	14	15	16	11
8	8	8	8	8	8	8	8	8	8

1. If you had 2 bushels of walnuts, how many pecks would you have?

2. If you had 16 pecks of chestnuts, how many bushels would you have?

3. How many pecks of walnuts are there in ½ bushel?

4. How many quarts of nuts would you have if you had ½ bushel?

5. If you had ½ bushel of nuts, to how many persons could you sell 2 quarts each, and have 2 quarts left for yourself?

6. If you should gather 2 bushels of chestnuts, and give your brother a peck, and keep a peck yourself, how many pecks would you have left?

7. To how many children could you give a pint of filberts, if you had a peck of them?

8. If you had a peck of nuts, and should give 1 quart to one boy, 2 pints to another, and a pint to another, how many quarts and pints would you have left?

9. Write the table of measures you use in measuring nuts.

10. Name 5 things that are measured with these measures.

11. Fill blanks:
—— stands for peck.
—— stands for quart.
—— stands for bushel.
—— stands for pint.

12. Fill blanks:
4 pt. make —— quarts.
12 qt. make —— pk. and —— qt.
10 pk. make —— bu. and —— pk.
½ bu. makes —— pk.

13. Write 5 examples using quarts.

14. Write 5 examples using pecks.

15. Write 5 examples using bushels.

16. How do you find the number of quarts in a certain number of pecks?

17. How do you find the number of pints in a certain number of quarts?

(See note on page 53.)

1.	**2.**	**3.**	**4.**
$2 \times 2 = ?$	$4 \times 3 = ?$	$2 \times 3 = ?$	$3 \times 4 = ?$
$3 \times 3 = ?$	$5 \times 2 = ?$	$2 \times 5 = ?$	$3 \times 5 = ?$
$4 \times 4 = ?$	$6 \times 2 = ?$	$2 \times 8 = ?$	$8 \times 2 = ?$
$5 \times 3 = ?$	$4 \times 2 = ?$	$2 \times 6 = ?$	$2 \times 7 = ?$

5.	**6.**	**7.**	**8.**
$2 \times ? = 8$	$4 \times ? = 12$	$3 \times ? = 6$	$2 \times ? = 10$
$3 \times ? = 12$	$5 \times ? = 15$	$4 \times ? = 8$	$4 \times ? = 12$
$4 \times ? = 16$	$6 \times ? = 12$	$5 \times ? = 10$	$5 \times ? = 10$
$5 \times ? = 10$	$7 \times ? = 14$	$8 \times ? = 16$	$3 \times ? = 9$

9.	**10.**	**11.**	**12.**
$10 \div 2 = ?$	$9 \div 3 = ?$	$10 \div 5 = ?$	$16 \div 2 = ?$
$14 \div 7 = ?$	$12 \div 4 = ?$	$15 \div 5 = ?$	$12 \div 3 = ?$
$16 \div 8 = ?$	$8 \div 8 = ?$	$16 \div 4 = ?$	$15 \div 3 = ?$
$10 \div 2 = ?$	$6 \div 3 = ?$	$14 \div 2 = ?$	$8 \div 4 = ?$

13.	**14.**	**15.**	**16.**
$2 \times 2 = ?$	$2 \times 5 = ?$	$3 \times 5 = ?$	$4 \times 2 = ?$
$2 \times 6 = ?$	$2 \times 7 = ?$	$4 \times 1 = ?$	$4 \times 4 = ?$
$2 \times 4 = ?$	$3 \times 1 = ?$	$4 \times 3 = ?$	$5 \times 2 = ?$
$2 \times 8 = ?$	$3 \times 4 = ?$	$5 \times 1 = ?$	$6 \times 1 = ?$
$2 \times 3 = ?$	$3 \times 3 = ?$	$5 \times 3 = ?$	$6 \times 2 = ?$

17.	**18.**	**19.**	**20.**
$6 \div 2 = ?$	$6 \times ? = 12$	$12 \div 4 = ?$	$9 \div 3 = ?$
$8 \div 2 = ?$	$2 \times ? = 16$	$15 \div 3 = ?$	$8 \div 4 = ?$
$12 \div 6 = ?$	$3 \times ? = 15$	$16 \div 8 = ?$	$10 \div 5 = ?$
$12 \div 2 = ?$	$2 \times ? = 14$	$12 \div 6 = ?$	$6 \div 3 = ?$

7 + 10, or 10 + 7 = 17   **XVII = 17**

8 + 9, or 9 + 8 = 17

10 + 7 = 17

1.	2.	3.
6 + ? = 17	? + 10 = 17	15 + 2 = ?
7 + ? = 17	? + 4 = 17	14 + 3 = ?
8 + ? = 17	? + 6 = 17	13 + 4 = ?
9 + ? = 17	? + 9 = 17	12 + 5 = ?
5 + ? = 17	? + 11 = 17	11 + 6 = ?

4.	5.	6.	7.
17 − 9 = ?	17 − 10 = ?	17 − 2 = ?	17 − ? = 7
17 − 7 = ?	17 − 8 = ?	17 − 16 = ?	17 − ? = 9
17 − 5 = ?	17 − 3 = ?	17 − 13 = ?	17 − ? = 4
17 − 4 = ?	17 − 11 = ?	17 − 14 = ?	17 − ? = 8
17 − 6 = ?	17 − 15 = ?	17 − 1 = ?	17 − ? = 5

8.	9.	10.	11.
17 − ? = 16	? − 5 = 12	? − 8 = 9	? − 4 = 13
17 − ? = 3	? − 7 = 10	? − 6 = 9	? − 5 = 12
17 − ? = 14	? − 4 = 10	? − 7 = 9	? − 6 = 11
17 − ? = 6	? − 8 = 2	? − 5 = 9	? − 7 = 10
17 − ? = 10	? − 5 = 6	? − 3 = 9	? − 8 = 9

12.	13.	14.	15.
8 + 5 = ?	12 + 5 = ?	4 + 7 = ?	10 + 7 = ?
7 + 6 = ?	8 + 4 = ?	11 + 6 = ?	11 + 6 = ?
9 + 8 = ?	6 + 4 = ?	10 + 5 = ?	11 + 4 = ?
8 + 8 = ?	9 + 6 = ?	9 + 5 = ?	8 + 6 = ?
6 + 5 = ?	3 + 7 = ?	9 + 7 = ?	7 + 5 = ?
4 + 13 = ?	9 + 8 = ?	10 + 7 = ?	9 + 4 = ?
12 + 5 = ?	6 + 11 = ?	7 + 8 = ?	11 + 5 = ?

This lesson should be used for both oral and seat work.

1. 4 is contained in 17 (——) times and (——) over.
2. 6 is contained in 17 (——) times and (——) over.
3. 8 is contained in 17 (——) times and (——) over.
4. 9 is contained in 17 (——) times and (——) over.
5. 5 is contained in 17 (——) times and (——) over.
6. 3 is contained in 17 (——) times and (——) over.
7. 2 is contained in 17 (——) times and (——) over.
8. 7 is contained in 17 (——) times and (——) over.

    4)17   5)14
      4 and 1 over.   2 and 4 over.

9.   3)17   4)17   5)16   6)17   7)17   8)17

10. 3)16   4)16   5)17   6)16   7)16   8)16

11. 3)15   4)15   5)15   6)15   7)15   8)15

12. 3)14   4)14   5)14   6)14   7)14   8)14

13. 3)13   4)13   5)13   6)13   7)13   8)13

14. 3)12   4)12   5)12   6)12   7)12   8)12

15. 9)17   9)16   9)15   9)14   9)13   9)12

16. 17 is (——) times 4 and (——) over.
17. 17 is (——) times 5 and (——) over.
18. 17 is (——) times 8 and (——) over.
19. 17 is (——) times 4 and (——) over.
20. 17 is (——) times 6 and (——) over.
21. 17 is (——) times 3 and (——) over.
22. 17 is (——) times 2 and (——) over.
23. 17 is (——) times 7 and (——) over.
24. 17 is (——) times 9 and (——) over.
25. 17 is (——) more than 4 times 3.
26. 17 is (——) more than 4 times 4.
27. 17 is (——) more than 3 times 5.

1. 17 months will make how many years and how many months over?

2. 17 inches are how many inches more than a foot?

3. 17 eggs are how many more than 1 dozen eggs?

4. 17 days are how many weeks and how many days over?

5. 17 feet are how many yards and how many feet over?

6. 17 quarts are how many gallons and how many quarts over?

7. 17 pints are how many quarts and how many pints over?

8. 17 gills are how many pints and how many gills over?

9. 17 pecks are how many bushels and how many pecks over?

10. 17 quarts are how many pecks and how many quarts over?

11. 17 cents are how many cents more than a dime?

12. 17 cents are how many cents more than 3 5-cent pieces?

13. 17 cents are how many cents more than 1 dime and 1 5-cent piece?

14. 17 days are how many days more than a fortnight or two weeks?

15. Draw without using a ruler a vertical line 17 in. long.

16. Draw without using a ruler a horizontal line 1 foot 5 inches long.

17. Take a ruler, and measure the lines you have just drawn, to see how much of a mistake you made.

18. How many squares can you make with 17 inch sticks? and how many sticks will not be used?

19. See how many things you can write about 17.

1. What is the area of a flower-bed 8 feet long and 2 feet wide?

2. Draw a yard square on the board. Divide it into square feet. How many square feet are there?

3. Find 5 things in the room that you can measure, and then find their area.

4. If 3 bu. of lemons cost $12, what will 1 bu. cost? What will 1 peck cost?

5. If this room is 5 yards and 2 feet long, how many feet long is it?

6. May had 17 apples. She ate 1, and gave $\frac{1}{2}$ of the rest to her brother. How many did she have left?

7. Carl has a square garden that is 16 feet round it. How long is one side?

8. If you had two 5-cent pieces, one 2-cent piece; one 3-cent piece, and two 1-cent pieces, how many cents would you have?

9. If you should sell 2 quarts of milk at one house, 4 quarts at another, and 6 quarts at a third house, how many gallons would you sell? If you had 4 gallons at first, how many quarts would you have left?

10. If one half a gallon of vinegar costs 16 cents, what will 1 pint cost?

11. How many times can I fill a 2-quart can from a pail that holds 12 quarts?

12. If Mr. Smith pays 2 cents for a pencil, and 15 cents for some paper, how many cents does he spend?

13. A man bought a barrel of flour for $6, and paid $9 for other things; how many dollars did he spend?

14. How many are 12 and 3 less 8? 12 and 4 less 7?

15. How many are 5 and 8 less 12? 12 and 3 less 9?

16. How many are 17 less 5 less 9? 9 and 5 less 6?

17. If 3 tables cost $15, what will 1 table cost? What will 2 tables cost?
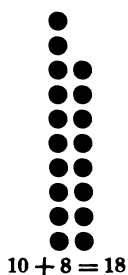
$$8 + 10, \text{ or } 10 + 8 = 18 \qquad \text{XVIII} = 18$$
$$9 + 9 \qquad\qquad\quad = 18 \qquad 9 \times 2 = 18$$
$$6 \times 3 = 18$$

10 + 8 = 18

1.

$15 + 3 = ?$
$7 + 11 = ?$
$9 + 9 = ?$
$6 + 12 = ?$

2.

$8 + 7 = ?$
$9 + 8 = ?$
$6 + 5 = ?$
$11 + 7 = ?$

3.

$8 + 10 = ?$
$14 + 4 = ?$
$13 + 3 = ?$
$11 + 5 = ?$

4.

$7 + ? = 18$
$6 + ? = 18$
$8 + ? = 18$
$9 + ? = 18$

5.

$5 + ? = 18$
$15 + ? = 18$
$4 + ? = 18$
$13 + ? = 18$

6.

$2 + ? = 18$
$14 + ? = 18$
$3 + ? = 18$
$16 + ? = 18$

7.

$? + 8 = 18$
$? + 14 = 18$
$? + 11 = 18$
$? + 9 = 18$

8.

$18 - 8 = ?$
$18 - 14 = ?$
$18 - 9 = ?$
$18 - 15 = ?$

9.

$18 - 10 = ?$
$18 - 2 = ?$
$18 - 7 = ?$
$18 - 15 = ?$

10.

$18 - 1 = ?$
$18 - 13 = ?$
$18 - 3 = ?$
$18 - 16 = ?$

11.

$18 - 4 = ?$
$18 - 6 = ?$
$18 - 11 = ?$
$18 - 12 = ?$

12.

$18 = 7 + ?$
$18 = 10 + ?$
$18 = 5 + ?$
$18 = 14 + ?$
$18 = 8 + ?$

13.

$18 = 2 + ?$
$18 = 13 + ?$
$18 = 15 + ?$
$18 = 3 + ?$
$18 = 9 + ?$

14.

$18 = 1 + ?$
$18 = 4 + ?$
$18 = 6 + ?$
$18 = 11 + ?$
$18 = 12 + ?$

15.

$\frac{1}{2} \text{ of } 18 = ?$
$\frac{1}{3} \text{ of } 18 = ?$
$\frac{1}{4} \text{ of } 16 = ?$
$\frac{1}{3} \text{ of } 15 = ?$
$\frac{1}{2} \text{ of } 12 = ?$

16.

$2 + 16 = ?$
$13 + 5 = ?$
$9 + 7 = ?$

17.

$8 + 8 = ?$
$7 + 10 = ?$
$9 + 6 = ?$

18.

$\frac{1}{4} \text{ of } 12 = ?$
$\frac{1}{2} \text{ of } 14 = ?$
$\frac{1}{2} \text{ of } 16 = ?$

19.

$\frac{1}{3} \text{ of } 12 = ?$
$\frac{1}{4} \text{ of } 8 = ?$
$\frac{1}{3} \text{ of } 9 = ?$

(See note page 53.)

1.	**2.**	**3.**	**4.**
$1 \times 2 = ?$	$9 \times 2 = ?$	$2 \times 4 = ?$	$3 \times 6 = ?$
$2 \times 2 = ?$	$1 \times 3 = ?$	$3 \times 4 = ?$	$1 \times 7 = ?$
$3 \times 2 = ?$	$2 \times 3 = ?$	$4 \times 4 = ?$	$2 \times 7 = ?$
$4 \times 2 = ?$	$3 \times 3 = ?$	$1 \times 5 = ?$	$1 \times 8 = ?$
$5 \times 2 = ?$	$4 \times 3 = ?$	$2 \times 5 = ?$	$2 \times 8 = ?$
$6 \times 2 = ?$	$5 \times 3 = ?$	$3 \times 5 = ?$	$1 \times 9 = ?$
$7 \times 2 = ?$	$6 \times 3 = ?$	$1 \times 6 = ?$	$2 \times 9 = ?$
$8 \times 2 = ?$	$1 \times 4 = ?$	$2 \times 6 = ?$	$1 \times 10 = ?$

5.	**6.**	**7.**	**8.**
$6 \times 3 = ?$	$4 \times 3 = ?$	$7 \times 2 = ?$	$3 \times 4 = ?$
$4 \times 4 = ?$	$3 \times 5 = ?$	$8 \times 2 = ?$	$3 \times 2 = ?$
$2 \times 8 = ?$	$2 \times 9 = ?$	$3 \times 6 = ?$	$5 \times 3 = ?$
$9 \times 2 = ?$	$6 \times 2 = ?$	$2 \times 5 = ?$	$2 \times 6 = ?$

9.	**10.**	**11.**	**12.**
$18 \div 3 = ?$	$16 \div 4 = ?$	$15 \div 5 = ?$	$12 \div 6 = ?$
$18 \div 6 = ?$	$16 \div 2 = ?$	$15 \div 3 = ?$	$12 \div 3 = ?$
$18 \div 9 = ?$	$16 \div 8 = ?$	$14 \div 7 = ?$	$12 \div 2 = ?$
$18 \div 2 = ?$	$16 \div 3 = ?$	$14 \div 2 = ?$	$14 \div 4 = ?$

13.	**14.**	**15.**	**16.**
$9 + 9 = ?$	$8 + 8 = ?$	$7 + 7 = ?$	$6 + 6 = ?$
$9 + 7 = ?$	$8 + 6 = ?$	$7 + 5 = ?$	$6 + 4 = ?$
$9 + 5 = ?$	$8 + 4 = ?$	$7 + 3 = ?$	$6 + 2 = ?$

17.	**18.**	**19.**	**20.**	**21.**	**22.**	**23.**	**24.**	**25.**	**26.**
4	4	3	6	6	7	8	7	8	4
4	5	4	6	0	7	8	6	9	7
4	4	4	2	6	2	0	0	0	6
4	5	3	3	6	2	2	5	1	1
—	—	—	—	—	—	—	—	—	—

1. In a street there were 15 doves picking up corn, but a dog frightened away 8 of them. How many were left?

2. There were 16 houses on a street, but a fire burned 7 of them. How many were not burned?

3. Two boys started from the same place. One ran north 12 yards, and the other south 6 yards. How far apart were they then? (Illustrate.)

4. If the two boys had both gone north, how far apart would they have been? (Illustrate.)

5. I bought a watch for $11, and sold it for $17. How many dollars did I gain?

6. If a deer runs 15 miles in an hour, and a dog runs 18 miles in the same time, how many miles has the dog gained on the deer?

7. A man paid $16 for a gun, which was $1 less than he paid for a dog. How much did he pay for his dog?

8. A man bought a load of hay for $16, and sold it for $18. How many dollars did he gain?

9. A man paid $5 to one man and $6 to another; how many dollars did he pay out? If he had $16 at first, how many dollars did he have left?

10. If a table is 5 feet on one side, and 3 feet on the other, how many feet is it all round the table?

11. Two boys wish to buy a ball together. One boy has 7 cents, and the other has 6 cents; how many cents have they? How many more cents do the boys need if the ball costs 15 cents?

12. A man owed $15, and paid $9 of it; how much did he then owe?

13. A farmer sold some potatoes for $5, and some butter for $7. How many dollars did he receive? He then bought a barrel of flour for $6. How much money did the farmer have left?
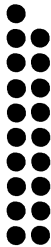
$9 + 10$, or $10 + 9 = 19$ $XIX = 19$

$10 + 9 = 19$

1.	**2.**	**3.**
$19 - 14 = ?$	$19 - 17 = ?$	$19 - 8 = ?$
$19 - 11 = ?$	$19 - 3 = ?$	$19 - 5 = ?$
$19 - 9 = ?$	$19 - 10 = ?$	$19 - 7 = ?$
$19 - 4 = ?$	$19 - 2 = ?$	$19 - 13 = ?$

4.	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11.**	**12.**	**13.**
7	4	7	8	5	3	3	5	4	9
4	6	7	8	4	3	9	5	4	8
5	4	2	2	4	7	0	5	4	0
3	5	3	1	6	6	7	4	7	2

14. $18 + ? = 19$ $19 - ? = 12$ $15 + ? = 19$

15. $14 + ? = 19$ $19 - ? = 7$ $13 + ? = 19$

16. $16 + ? = 19$ $19 - ? = 6$ $8 + ? = 19$

17. $12 + ? = 19$ $19 - ? = 9$ $9 + ? = 19$

18. $19 = ? \times 3$ and (——) over.

19. $19 = ? \times 5$ and (——) over.

20. $19 = ? \times 4$ and (——) over.

21. $19 = ? \times 2$ and (——) over.

22. $19 = ? \times 7$ and (——) over.

23. $19 = ? \times 6$ and (——) over.

24. 6 is contained in 19 (——) times and (——) over.

25. 8 is contained in 19 (——) times and (——) over.

26. 9 is contained in 19 (——) times and (——) over.

27. 7 is contained in 19 (——) times and (——) over.

28. 11 is contained in 19 (——) times and (——) over.

29. 15 is contained in 19 (——) times and (——) over.

30. 12 is contained in 19 (——) times and (——) over.

31. 5 is contained in 19 (——) times and (——) over.

1. Take 19 inch-sticks.   How many squares can you make ?

2. How many triangles can you make ?

3. Make 4 squares and 1 triangle.   How many sticks are left ?

4. How many sides have 4 squares and 1 triangle ?

5. How many pentagons can you make ? and how many sticks are unused ?   A pentagon has 5 sides.

6. Make 3 pentagons and 1 square ; how many sticks are left ?

7. How many sides have 3 pentagons and 1 square ?

8. Draw a line 19 feet long.   How much more than 6 yards is it ?

9. Draw a line 19 inches long.   How much more than $1\frac{1}{2}$ feet is it ?

10. 19 oranges are how many more than $1\frac{1}{2}$ doz. oranges ?

11. 19 days are how many days more than 2 weeks ?

12. 19 ounces are how many ounces more than 1 pound ?

13. 19 quarts are how many quarts more than 4 gallons ?

14. 19 pints are how many pints more than 9 quarts?

15. 19 gills are how many gills more than 4 pints ?

16. 19 pecks are how many pecks more than 4 bushels ?

17. 19 quarts are how many quarts more than 2 pecks ?

18. 19 months are how many months more than 1 year ?

19. 19 cents are how many cents more than 1 dime ?

20. $19 = \frac{1}{3}$ of 18 and (——) over.

21. $19 = \frac{1}{3}$ of 15 and (——) over.

22. $19 = \frac{1}{2}$ of 18 and (——) over.

23. $19 = \frac{1}{3}$ of $18 + \frac{1}{3}$ of 18 and (——) over.

24. $19 = 3 \times 6$ and (——) over.

1. If 1 lb. of sugar costs 8 cents, what will 2 lb. cost?

2. If 1 lb. of fish costs 9 cents, what will 2 lb. cost?

3. What will 3 quarts of berries cost at 6 cents a quart?

4. What will 4 bushels of cranberries cost at $3 a bushel?

5. At $4 a yard, what will 4 yd. of broadcloth cost?

6. If a cocoanut is worth 9 cents, what is $\frac{1}{3}$ of it worth?

7. If a cord of wood costs $6, what does $\frac{1}{3}$ of it cost?

8. When $8 are paid for a ton of coal, what must be paid for $\frac{1}{4}$ of a ton?

9. If a barrel of sugar is worth $18, what is $\frac{1}{3}$ of a barrel worth?

10. If $\frac{1}{4}$ of an orange is worth 1 cent, what is the whole of it worth?

11. If 1 lb. of cheese costs 12 cents, what will $\frac{1}{4}$ of a pound cost?

12. If 1 bushel of beans is worth $4, what is $\frac{1}{2}$ of a bushel worth?

13. If 4 dimes will buy 1 yard of cloth, what part of a yard will 1 dime buy?

14. If a barrel of flour costs $6, what part of a barrel can you buy for $2?

15. If a table is 6 feet long and 3 feet wide, how many square feet are there in the top of the table? In $\frac{1}{2}$ of the table? In $\frac{1}{3}$ of it?

16. There were enough quart bottles on a shelf to hold 18 pints. How many bottles were there?

17. What will 6 oranges cost at 2 cents each? How many lemons at 4 cents each will pay for the oranges?

18. What will 2 melons cost at 9 cents each? How many pears at 3 cents each will pay for the melons?

19. At $6 a ton what will $1\frac{1}{2}$ tons of coal cost?

For class and seat work.

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
5	4	5	2	8	5	4	6	4	4
7	3	9	5	4	1	5	5	5	6
4	5	4	4	5	4	4	4	5	4

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
7	6	6	4	4	4	6	4	6	5
6	3	9	2	8	5	4	6	6	5
4	4	4	6	6	6	1	4	4	5

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
7	7	6	2	7	5	1	7	7	7
4	4	4	7	4	4	7	4	6	6
7	3	9	4	8	7	4	4	5	6

31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
8	4	8	4	8	8	8	8	8	8
7	3	2	2	3	5	2	4	6	7
4	8	9	8	8	4	6	5	4	3

41.	42.	43.	44.	45.	46.	47.	48.	49.	50.
9	7	9	9	8	9	4	4	4	5
3	9	9	4	9	4	9	9	6	9
4	2	1	2	2	5	1	5	9	5

51.	52.	53.	54.	55.	56.	57.	58.	59.	60.
5	5	6	8	4	9	6	7	6	3
7	8	3	4	9	2	8	2	9	4
3	6	5	7	6	7	5	9	4	9

61.	62.	63.	64.	65.	66.	67.	68.	69.	70.
9	8	9	8	9	7	6	8	6	5
9	8	8	7	7	7	9	6	7	9

For class and seat work.

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
5	4	7	9	8	9	11	13	12	16
2	3	4	5	6	7	8	9	3	7

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
3	7	5	6	12	12	15	10	9	19
2	3	4	5	6	7	8	9	6	3

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
6	5	9	11	10	13	15	13	7	8
2	3	4	5	6	8	9	6	5	7

31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
9	8	11	8	13	11	9	11	17	12
2	3	4	5	6	7	8	9	8	8

41.	42.	43.	44.	45.	46.	47.	48.	49.	50.
7	10	6	13	11	15	16	17	13	18
2	3	4	5	6	7	8	9	7	9

51.	52.	53.	54.	55.	56.	57.	58.	59.	60.
10	9	10	10	15	10	11	12	12	16
2	3	4	5	6	7	8	9	5	7

61.	62.	63.	64.	65.	66.	67.	68.	69.	70.
8	11	13	14	7	14	14·	16	11	15
2	3	4	5	6	7	8	9	3	9

71.	72.	73.	74.	75.	76.	77.	78.	79.	80.
4	6	8	7	14	16	17	14	18	12
2	3	4	5	6	7	8	9	9	4

$$10 + 10 = 20 \qquad XX = 20$$

$$5 \times 4 = 20, \text{ or } 4 \times 5 = 20$$
$$10 \times 2 = 20, \text{ or } 2 \times 10 = 20$$

$$20 \div 2 = ? \qquad 20 \div 5 = ?$$
$$20 \div 4 = ? \qquad 20 \div 10 = ?$$

$10 + 10 = 20$

1.	**2.**	**3.**	**4.**
$20 = 9 + ?$	$20 = 8 + ?$	$20 = 2 + ?$	$20 = 3 + ?$
$20 = 7 + ?$	$20 = 6 + ?$	$20 = 5 + ?$	$20 = 11 + ?$
$20 = 10 + ?$	$20 = 16 + ?$	$20 = 14 + ?$	$20 = 13 + ?$
$20 = 4 + ?$	$20 = 15 + ?$	$20 = 12 + ?$	$20 = 17 + ?$

5.	**6.**	**7.**	**8.**
$16 + ? = 20$	$18 + ? = 20$	$19 + ? = 20$	$11 + ? = 20$
$14 + ? = 20$	$8 + ? = 20$	$17 + ? = 20$	$9 + ? = 20$
$12 + ? = 20$	$6 + ? = 20$	$15 + ? = 20$	$7 + ? = 20$
$10 + ? = 20$	$4 + ? = 20$	$13 + ? = 20$	$5 + ? = 20$

9.	**10.**	**11.**	**12.**
$20 - ? = 14$	$20 - 15 = ?$	$13 + 7 = ?$	$12 + 6 = ?$
$20 - ? = 9$	$20 - 11 = ?$	$12 + 8 = ?$	$11 + 8 = ?$
$20 - ? = 12$	$20 - 8 = ?$	$11 + 9 = ?$	$16 + 2 = ?$
$20 - ? = 16$	$20 - 13 = ?$	$14 + 6 = ?$	$11 + 7 = ?$

13. $20 = ?$ times 4 and (———) over.
14. $20 = ?$ times 2 and (———) over.
15. $20 = ?$ times 3 and (———) over.
16. $20 = ?$ times 6 and (———) over.
17. $20 = ?$ times 5 and (———) over.
18. $20 = ?$ and 1 and (———) over.
19. $20 = ?$ and 9 and (———) over.

Be careful that each pupil has at this point a correct idea of tens and units.

Give the pupils a handful of sticks.

1. Tie 10 sticks into a bundle. Call this bundle a TEN.

2. Make another *ten.*   Make a third *ten.*

3. How many tens and how many units must you take to have 11 ? 21 ? 12 ? 22 ? 13 ? 23 ? 14 ? 24 ? 15 ? 25 ? 16 ? 26 ? 27 ? 18 ? 28 ? 19 ? 29 ? 30 ?

4. Write 1 ten and 9 units.

5. Write 2 tens and 1 unit.

6. Write 2 tens and 4 units.

7. Write 1 ten and 7 units.

8. Write 1 ten and 3 units.

9. Write 2 tens and 5 units.

10. Write 1 ten and 8 units.

11. Under 2 tens and 5 units, write 1 ten and 2 units.

12. Under 2 tens and 8 units, write 2 tens and 1 unit.

13. Under 2 tens and 1 unit, write 1 ten and no units.

14. Under 1 ten and no units, write 2 tens and 4 units.

15. Under 1 ten and 9 units, write 1 ten and 4 units.

16. Write the following in columns, units under units, and tens under tens : 4 tens, 6 units ; 2 tens, 7 units ; 6 tens, 7 units ; 5 tens, 6 units ; 7 tens, 3 units ; 6 tens, 4 units.

17. Write in columns : 5 tens, 2 units ; 2 tens, 1 unit ; 2 tens, 6 units ; 1 ten, 3 units ; 9 tens, 2 units ; 7 tens, 5 units.

18. Read the numbers, 28, 32, 49, 76, 81.

19. Read the numbers, 17, 53, 94, 65, 37.

20. Write twenty-five, thirty-six.

21. Dictate many numbers for the pupils to write.

22. How many tens and how many units are there in 85 ? 76 ? 56 ? 67 ? 48 ? 35 ? 96 ?

23. Write seventy-six, ninety-four, sixty-two.

Drill till each combination can be given accurately and without hesitation:

Make an example to illustrate each combination.

1.	2.	3.	4.
$9 + 8 = ?$	$6 + 3 = ?$	$7 + 5 = ?$	$8 + 3 = ?$
$3 + 6 = ?$	$4 + 8 = ?$	$6 + 9 = ?$	$1 + 9 = ?$
$3 + 9 = ?$	$4 + 7 = ?$	$6 + 8 = ?$	$2 + 7 = ?$
$6 + 4 = ?$	$5 + 7 = ?$	$4 + 2 = ?$	$5 + 2 = ?$

5.	6.	7.	8.
$9 + 5 = ?$	$5 + 5 = ?$	$4 + 9 = ?$	$5 + 3 = ?$
$7 + 6 = ?$	$3 + 5 = ?$	$9 + 9 = ?$	$8 + 5 = ?$
$9 + 6 = ?$	$3 + 6 = ?$	$2 + 9 = ?$	$8 + 7 = ?$
$3 + 3 = ?$	$6 + 6 = ?$	$8 + 9 = ?$	$7 + 7 = ?$

9.	10.	11.	12.
$8 + 8 = ?$	$9 + 3 = ?$	$7 + 8 = ?$	$3 + 8 = ?$
$5 + 9 = ?$	$7 + 3 = ?$	$7 + 9 = ?$	$9 + 7 = ?$
$6 + 7 = ?$	$7 + 2 = ?$	$5 + 6 = ?$	$9 + 4 = ?$
$4 + 6 = ?$	$6 + 5 = ?$	$5 + 4 = ?$	$5 + 8 = ?$

13.	14.	15.	16.
$17 - 9 = ?$	$9 - 3 = ?$	$12 - 7 = ?$	$11 - 8 = ?$
$9 - 6 = ?$	$12 - 4 = ?$	$15 - 6 = ?$	$10 - 9 = ?$
$12 - 3 = ?$	$11 - 7 = ?$	$14 - 8 = ?$	$9 - 2 = ?$
$10 - 4 = ?$	$12 - 5 = ?$	$6 - 2 = ?$	$7 - 5 = ?$

17.	18.	19.	20.
$14 - 9 = ?$	$10 - 5 = ?$	$13 - 4 = ?$	$8 - 5 = ?$
$13 - 7 = ?$	$8 - 3 = ?$	$18 - 9 = ?$	$13 - 8 = ?$
$15 - 9 = ?$	$9 - 3 = ?$	$11 - 2 = ?$	$15 - 8 = ?$
$6 - 3 = ?$	$12 - 6 = ?$	$17 - 8 = ?$	$14 - 7 = ?$

In addition we add the units and tens separately.

1. Add 32 and 17.

32　　7 units and 2 units are 9 units. Write it under
17　units.　1 ten and 3 tens are 4 tens. Write it under
49　tens.

Add:

2.	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**
24	35	23	18	44	67	15	52
35	21	16	71	55	32	73	46

10.	**11.**	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**
42	74	61	19	24	53	88	72
37	24	36	80	73	44	11	27

18. Add 45 and 37.

45　　5 units and 7 units are 12 units, which is equal
37　to 2 units and 1 ten.　Write the two units under
12　units and the 1 ten under tens.　3 tens and 4 tens
7　are 7 tens.　Write it under tens.　7 tens and 1 ten
82　are 8 tens.　The answer is 8 tens and 2 units,
　　or 82.

NOTE. — At first write the two parts as in the illustration. As soon as possible have the pupils unite them mentally.

Add:

19.	**20.**	**21.**	**22.**	**23.**	**24.**	**25.**	**26.**
74	38	41	19	45	38	54	68
18	56	39	71	38	28	37	27

27.	**28.**	**29.**	**30.**	**31.**	**32.**	**33.**	**34.**
28	39	48	37	38	29	75	64
17	26	46	44	53	53	16	26

(Review page 30.)

1. The *perimeter* of a figure is the distance round it.

2. The area of a figure is the amount of its surface.

3. Take a 4-inch square. Fold it by placing the lower left-hand corner upon the upper right-hand corner. Crease it. We call such a line a diagonal. It means *through the angles.*

Make rectangles of the following measurements, and then find their area and perimeter.

NOTE. — In each case have the pupils tell you the number of units in a row, and the number of rows.

1. 10 inches long and 2 inches wide.
2. 10 inches long and 3 inches wide.
3. 9 inches long and 2 inches wide.
4. 9 inches long and 3 inches wide.
5. 8 inches long and 4 inches wide.
6. 8 inches long and 2 inches wide.
7. 8 inches long and 3 inches wide.
8. 7 inches long and 4 inches wide.
9. 6 inches long and 5 inches wide.
10. 5 inches long and 5 inches wide.
11. 7 inches long and 3 inches wide.
12. 6 inches long and 4 inches wide.
13. 7 inches long and 2 inches wide.
14. 6 inches long and 3 inches wide.
15. 5 inches long and 4 inches wide.
16. 4 inches long and 4 inches wide.
17. 5 inches long and 3 inches wide.
18. 4 inches long and 3 inches wide.

19. How many rows of inch squares did you find in each of these rectangles ?

20. How many inch squares did you find in each row ?

21. How many yards of fence must a man build round his yard if it is 9 yards long and 6 yards wide ?

A Rectangular Solid
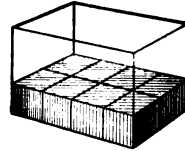
1. Take some inch cubes. Make a rectangle 4 inches long and 2 inches wide. How many cubes are in each row? How many rows are there?

2. Put another layer of cubes on top of the first layer. How many cubes are in this layer?

3. Put another layer on top of the other two. What form have you now?

4. How many layers have you? How many cubes in each layer?

5. How many cubes are there in the prism?

6. Make a cube that shall have 4 cubes on each side. How many layers have you made? How many cubes are in each layer?

7. Out of your cubes make a rectangle 6 inches long and 3 inches wide. Put on top 2 more layers like the first. Is this a cube? Why?

8. Make a prism 9 inches long, 2 inches wide, and 3 inches high. Tell how many layers you have, how many rows in each layer, and how many cubes in a row.

9. Do the same for each of the following: A prism 4 inches long, 4 inches wide, and 6 inches high.

10. A 5-inch cube.

11. A prism 5 inches long, 4 inches wide, and 6 inches high.

12. A prism 6 inches long, 3 inches wide, and 8 inches high.

13. A prism 6 inches long, 4 inches wide, and 6 inches high.

14. A 6-inch cube.

In subtraction we subtract the units from units, and tens from tens.

1. From 48 take 26.

48   6 units from 8 units leaves 2 units. Write it
26   under units. 2 tens from 4 tens leaves 2 tens.
22   Write it under tens.

2.	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**
36	47	55	86	94	24	69	85
21	24	33	64	72	12	58	73

10.	**11.**	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**
45	63	75	37	46	85	73	21
23	51	54	24	25	64	32	11

18.	**19.**	**20.**	**21.**	**22.**	**23.**	**24.**	**25.**
67	73	54	76	78	29	64	46
45	52	33	64	25	18	42	23

26.	**27.**	**28.**	**29.**	**30.**	**31.**	**32.**	**33.**
75	84	93	26	65	79	88	74
32	63	72	15	42	45	62	33

34.	**35.**	**36.**	**37.**	**38.**	**39.**	**40.**	**41.**
36	86	95	28	64	58	19	92
22	54	32	15	43	36	14	61

42.	**43.**	**44.**	**45.**	**46.**	**47.**	**48.**	**49.**
76	54	24	31	48	62	89	82
45	31	12	11	36	31	54	51

50.	**51.**	**52.**	**53.**	**54.**	**55.**	**56.**	**57.**
44	55	66	77	88	99	74	68
22	23	34	46	65	42	12	25

Facts below 30.

NOTE. — Use this lesson for a few moments daily till the class can give each answer quickly and correctly.

1.	**2.**	**3.**	**4.**
$1 \times 2 = ?$	$6 \times 2 = ?$	$11 \times 2 = ?$	$4 \times 3 = ?$
$3 \times 2 = ?$	$8 \times 2 = ?$	$12 \times 2 = ?$	$6 \times 3 = ?$
$5 \times 2 = ?$	$10 \times 2 = ?$	$1 \times 3 = ?$	$8 \times 3 = ?$
$2 \times 2 = ?$	$7 \times 2 = ?$	$3 \times 3 = ?$	$5 \times 3 = ?$
$4 \times 2 = ?$	$9 \times 2 = ?$	$2 \times 3 = ?$	$7 \times 3 = ?$

5.	**6.**	**7.**	**8.**
$9 \times 3 = ?$	$4 \times 4 = ?$	$2 \times 5 = ?$	$1 \times 6 = ?$
$10 \times 3 = ?$	$6 \times 4 = ?$	$4 \times 5 = ?$	$3 \times 6 = ?$
$1 \times 4 = ?$	$5 \times 4 = ?$	$6 \times 5 = ?$	$5 \times 6 = ?$
$3 \times 4 = ?$	$7 \times 4 = ?$	$3 \times 5 = ?$	$2 \times 6 = ?$
$2 \times 4 = ?$	$1 \times 5 = ?$	$5 \times 5 = ?$	$4 \times 6 = ?$

9.	**10.**	**11.**	**12.**
$1 \times 7 = ?$	$1 \times 8 = ?$	$2 \times 9 = ?$	$27 \div 3 = ?$
$3 \times 7 = ?$	$3 \times 8 = ?$	$3 \times 9 = ?$	$21 \div 3 = ?$
$2 \times 7 = ?$	$1 \times 9 = ?$	$1 \times 10 = ?$	$24 \div 3 = ?$
$4 \times 7 = ?$	$2 \times 8 = ?$	$3 \times 10 = ?$	$30 \div 3 = ?$

13.	**14.**	**15.**	**16.**
$18 \div 3 = ?$	$28 \div 4 = ?$	$30 \div 5 = ?$	$30 \div 6 = ?$
$9 \div 3 = ?$	$20 \div 4 = ?$	$15 \div 5 = ?$	$12 \div 6 = ?$
$15 \div 3 = ?$	$24 \div 4 = ?$	$25 \div 5 = ?$	$24 \div 6 = ?$
$12 \div 3 = ?$	$16 \div 4 = ?$	$20 \div 5 = ?$	$18 \div 6 = ?$

17.	**18.**	**19.**	**20.**
$30 \div 2 = ?$	$20 \div 2 = ?$	$10 \div 2 = ?$	$3 \div 3 = ?$
$22 \div 2 = ?$	$12 \div 2 = ?$	$6 \div 3 = ?$	$18 \div 9 = ?$
$26 \div 2 = ?$	$18 \div 2 = ?$	$8 \div 2 = ?$	$12 \div 4 = ?$

1. What will ½ a pound of sugar cost at 6 cents a pound? What will 3 pounds cost?

2. Arthur has $24 in a bank, and George has ⅓ as much. How much has George?

3. Make 7 vertical lines on the blackboard, each 2 inches apart. How far apart are the 2 outside lines?

4. If you buy a gallon of milk for 20 cents, and sell it at 6 cents a quart, how much will you gain on the gallon?

5. If you have a dozen oranges, and give away 7 of them, how much are the rest worth at 3 cents each?

6. If 10 shovels cost $20, how much will 8 shovels cost?

7. If your father pays $27 for 3 cords of wood, how much would he have to pay for 2 cords?

8. What will 3 papers of tacks cost at 8 cents a paper?

9. What will 10 pieces of braid cost at 3 cents each?

10. Give the pupils a box 6 inches long, 4 inches wide, and 3 inches deep. Measure this box. With your inch cubes make a pile just as large. How many inch cubes have you used in each layer? How many inch cubes are there in each face?

11. Find the area and perimeter of a flower bed 8 feet long and 1 yard wide.

12. How many months are there in 2 years?

13. How many yards are there in 21 feet?

14. How many pecks are there in 24 quarts?

15. How many dimes are there in 30 cents?

16. How many single things are there in 2 dozen things?

17. How many gallons are there in 28 quarts?

18. How many pints are there in 10 quarts?

19. Write the abbreviations for the months of the second half of the year.

a	4	7	5	3	4	9	6	8	2	7	4	2	a
b	6	4	7	5	7	8	5	3.	9	4	6	8	b
c	6	8	6	5	7	8	8	7	8	5	7	7	c
d	4	4	8	9	5	4	3	9	1	9	8	5	d
e	2	3	4	6	7	8	7	2	7	1	6	4	e
f	5	5	6	9	1	7	1	9	1	8	9	9	f
g	1	2	3	5	6	1	7	8	7	6	5	4	g
h	4	5	6	8	9	1	3	4	3	9	1	7	h
i	3	4	5	2	3	4	9	7	2	8	9	1	i
j	4	5	5	4	5	9	1	2	3	9	1	2	j
k	8	7	4	3	1	8	4	6	7	8	7	5	k
l	7	5	6	8	9	1	2	4	8	8	6	3	l

1. Add lines a and b; b and c, etc.
2. Add lines a, b, and c; b, c, and d, etc.
3. Add any four lines.
4. Multiply each line by 2.
5. Multiply each line by 3.
6. Add a and b, and from the sum take c.
7. Add b and c, and from the sum take d.
8. Add c and d, and from the sum take e.
9. Add d and e, and from the sum take f.
10. Add e and f, and from the sum take g.
11. Add a and c, and from the sum take b.
12. Add c and d, and from the sum take a.
13. Add c and d, and from the sum take b.
14. Add d and e, and from the sum take a.
15. Add k and l, and from the sum take j.
16. Multiply c by 2, and from the product subtract b.
17. Multiply c by 3, and from the product subtract the sum of a and b.
18. Multiply c by 2, and from the product subtract d.
19. Multiply b by 3, and from the product subtract a.
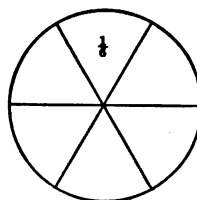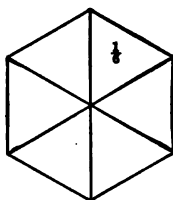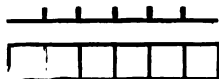
1. Into how many parts is the line divided?
2. Into how many parts is the circle divided?
3. What is each part called?
4. Draw a line 6 inches long.   Find $\frac{1}{6}$ of this line.
5. Draw a rectangle 3 inches long and 2 inches wide. Divide it into square inches.   Mark off $\frac{1}{6}$ of it.
6. What is $\frac{1}{6}$ of 12?
7. What is $\frac{1}{3}$ of 12?
8. How much larger is $\frac{1}{3}$ of 12 than $\frac{1}{6}$ of 12?
9. How many months in $\frac{1}{6}$ of a year?
10. How many inches in $\frac{1}{6}$ of a foot?
11. How many eggs in $\frac{1}{6}$ of a dozen?
12. Draw a square, mark off $\frac{1}{6}$ of it.
13. Make 4 examples, using $\frac{1}{6}$ in each.
14. How many are $\frac{1}{6}$ of 12, $\frac{1}{3}$ of 12, and $\frac{1}{4}$ of 12?
15. Which is larger, $\frac{1}{2}$ of an apple or $\frac{1}{6}$ of it?
16. Which is larger, $\frac{1}{3}$ of an apple or $\frac{1}{4}$ of it?
17. By drawing lines and dividing them into equal parts, show the answers to the 15th and 16th questions.
18. If $\frac{1}{6}$ of a pound of raisins is worth 2 cents, what are $\frac{2}{6}$ of a pound worth?
19. If $\frac{1}{6}$ of a pound of butter is worth 4 cents, what are $\frac{3}{6}$ of a pound worth?
20. Mary is 12 years old, and her brother is $\frac{1}{6}$ as old; how old is her brother?
21. 3 is $\frac{1}{6}$ of what number?
22. 5 is $\frac{1}{6}$ of what number?

(See pages 5, 12, 78.)

The teacher should provide *many* circles, and cut them into halves, thirds, etc. Let the pupils perform all examples in fractions objectively. If fractional disks are used this lesson can be made clear and interesting.

1.	**2.**	**3.**	**4.**
$\frac{1}{3}$ of $3 = ?$	$\frac{1}{2}$ of $1 = ?$	$\frac{1}{4}$ of $1 = ?$	$\frac{1}{6}$ of $1 = ?$
$\frac{1}{3}$ of $1 = ?$	$\frac{1}{2}$ of $5 = ?$	$\frac{1}{4}$ of $4 = ?$	$\frac{1}{6}$ of $6 = ?$
$\frac{1}{3}$ of $4 = ?$	$\frac{1}{2}$ of $7 = ?$	$\frac{1}{4}$ of $5 = ?$	$\frac{1}{6}$ of $7 = ?$
$\frac{1}{3}$ of $6 = ?$	$\frac{1}{2}$ of $9 = ?$	$\frac{1}{4}$ of $8 = ?$	$\frac{1}{6}$ of $12 = ?$

5.	**6.**	**7.**	**8.**
$\frac{1}{3}$ of $7 = ?$	$\frac{1}{2}$ of $2 = ?$	$\frac{1}{3}$ of $13 = ?$	$\frac{1}{2} + \frac{1}{2} = ?$
$\frac{1}{3}$ of $9 = ?$	$\frac{1}{2}$ of $4 = ?$	$\frac{1}{6}$ of $13 = ?$	$\frac{1}{3} + \frac{1}{3} = ?$
$\frac{1}{3}$ of $10 = ?$	$\frac{1}{2}$ of $6 = ?$	$\frac{1}{2}$ of $10 = ?$	$\frac{1}{4} + \frac{1}{4} = ?$
$\frac{1}{3}$ of $12 = ?$	$\frac{1}{2}$ of $8 = ?$	$\frac{1}{2}$ of $11 = ?$	$\frac{1}{6} + \frac{1}{6} = ?$

9.	**10.**	**11.**	**12.**
$\frac{2}{3} - \frac{1}{3} = ?$	$\frac{3}{4} - \frac{1}{4} = ?$	$1 - \frac{1}{4} = ?$	$\frac{2}{3} - \frac{1}{3} = ?$
$\frac{2}{3} - \frac{1}{3} = ?$	$\frac{3}{4} - \frac{1}{4} = ?$	$1 - \frac{1}{2} = ?$	$\frac{3}{6} - \frac{1}{6} = ?$
$\frac{1}{2} - \frac{1}{3} = ?$	$\frac{1}{4} - \frac{1}{4} = ?$	$1 - \frac{1}{6} = ?$	$\frac{4}{6} - \frac{1}{6} = ?$
$\frac{3}{4} - \frac{1}{4} = ?$	$\frac{1}{2} - \frac{1}{3} = ?$	$1 - \frac{1}{3} = ?$	$\frac{1}{6} - \frac{1}{6} = ?$

13.	**14.**	**15.**	**16.**
$\frac{1}{4} + \frac{2}{4} = ?$	$\frac{1}{4} + \frac{2}{4} = ?$	$1 - \frac{2}{3} = ?$	$\frac{2}{3} + \frac{1}{6} = ?$
$\frac{2}{3} + \frac{2}{3} = ?$	$\frac{1}{4} + \frac{1}{2} = ?$	$1 - \frac{1}{2} = ?$	$\frac{3}{6} + \frac{1}{6} = ?$
$\frac{1}{3} + \frac{2}{3} = ?$	$\frac{3}{6} + \frac{2}{6} = ?$	$1 - \frac{2}{6} = ?$	$\frac{4}{6} + \frac{1}{6} = ?$
$\frac{2}{4} + \frac{2}{4} = ?$	$\frac{2}{6} + \frac{2}{6} = ?$	$1 - \frac{1}{6} = ?$	$\frac{5}{6} + \frac{1}{6} = ?$

17.	**18.**	**19.**
2 is $\frac{1}{2}$ of ?	2 is $\frac{1}{6}$ of ?	3 is $\frac{1}{2}$ of ?
4 is $\frac{1}{3}$ of ?	3 is $\frac{1}{4}$ of ?	1 is $\frac{1}{2}$ of ?
5 is $\frac{1}{2}$ of ?	3 is $\frac{1}{3}$ of ?	1 is $\frac{1}{6}$ of ?

NOTE. — Thus far the numbers used have been small and the age of the pupils such that most of the work has been done orally. From now on as the numbers grow larger, a distinction will be made between oral and written work. The oral work will be made quite prominent, and should receive its fair share of time and attention.

1. Copy, fill blanks, and memorize :

$1 \times 2 = ?$	$1 \times 3 = ?$	$1 \times 4 = ?$	$1 \times 5 = ?$
$2 \times 2 = ?$	$2 \times 3 = ?$	$2 \times 4 = ?$	$2 \times 5 = ?$
$3 \times 2 = ?$	$3 \times 3 = ?$	$3 \times 4 = ?$	$3 \times 5 = ?$
$4 \times 2 = ?$	$4 \times 3 = ?$	$4 \times 4 = ?$	$4 \times 5 = ?$
$5 \times 2 = ?$	$5 \times 3 = ?$	$5 \times 4 = ?$	$5 \times 5 = ?$
$6 \times 2 = ?$	$6 \times 3 = ?$	$6 \times 4 = ?$	$6 \times 5 = ?$
$7 \times 2 = ?$	$7 \times 3 = ?$	$7 \times 4 = ?$	$7 \times 5 = 35$
$8 \times 2 = ?$	$8 \times 3 = ?$	$8 \times 4 = 32$	$8 \times 5 = 40$
$9 \times 2 = ?$	$9 \times 3 = ?$	$9 \times 4 = 36$	$9 \times 5 = 45$
$10 \times 2 = ?$	$10 \times 3 = ?$	$10 \times 4 = 40$	$10 \times 5 = 50$
$11 \times 2 = ?$	$11 \times 3 = 33$	$11 \times 4 = 44$	$11 \times 5 = 55$
$12 \times 2 = ?$	$12 \times 3 = 36$	$12 \times 4 = 48$	$12 \times 5 = 60$

NOTE. — The Multiplication Tables must be thoroughly learned. The only way is to drill constantly.

2. At 4 cents each, 2 melons cost ———— cents.

3. 7 days make a week. How many days are there in 2 weeks?

4. How much will 7 quarts of milk cost, at 5 cents a quart?

5. At 4 cents a yard, 9 yards of ribbon will cost ———— cents.

6. If a horse travels 4 miles an hour, how far will he travel in 8 hours?

7. There are 3 feet in a yard. In 12 yards there are ———— feet.

8. At $3 a barrel, what will 9 barrels of apples cost?

9. Four pecks make a bushel. How many pecks are there in 11 bushels?

Units of minuend smaller than units of subtrahend.

(Review page 74.)

NOTE. — Do not use the word *borrow*. We do not borrow what we have no intention of returning; we simply take it. Have the pupils perform the subtraction with splints before attempting to put the work on paper. Give the pupil 2 tens and 3 units. He will readily see that in order to take away 1 ten and 7 units he must resolve one ten into units. He will then have 1 ten and 13 units. From this he can readily take one ten and 7 units.

```
1 13
23      Explain clearly that we take 1 ten from the 2
17      tens, which of course equals 10 units. This added
6       to 3 units makes 13 units. 7 units from 13 units
        leaves 6 units. 1 ten from 1 ten leaves nothing.
```

1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**
21	23	25	27	22	24	26	31	34
13	17	16	19	14	18	19	17	19

10.	**11.**	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**	**18.**	**19.**
21	23	25	27	22	24	26	35	24	53
14	19	17	18	15	19	18	28	16	36

20.	**21.**	**22.**	**23.**	**24.**	**25.**	**26.**	**27.**	**28.**	**29.**
21	22	23	24	25	26	27	34	72	81
15	16	18	17	18	17	18	25	57	45

30.	**31.**	**32.**	**33.**	**34.**	**35.**	**36.**	**37.**	**38.**	**39.**
74	66	48	81	54	92	72	57	69	84
36	48	19	64	35	75	43	28	41	56

40.	**41.**	**42.**	**43.**	**44.**	**45.**	**46.**	**47.**	**48.**	**49.**
60	51	72	93	54	85	63	76	87	96
48	27	36	47	28	56	37	29	48	49

(Review page 69.)

Note. — The teacher should have 10 bundles of splints, each bundle containing 10 splints.

1. Ten tens make one hundred.
2. Write 9 tens and 4 units.
3. Write ten tens and 2 units.
4. Write 1 hundred, 2 tens, and 3 units.
5. Read 146, 116, 127, 136, 185.
6. Read 205, 302, 317, 460, 509.
7. Write one hundred twenty.
8. Write 3 hundreds, 4 tens, 6 units.
9. Write 5 hundreds, no tens, 2 units.
10. Write two hundred five.
11. Write four hundred sixty-five.
12. Write nine hundred thirty.
13. Read 806; 724; 501; 444; 206.
14. Read 122; 209; 319; 478; 505.

15. Add:

10	20	30	40	50
90	80	70	60	50

16. $10 \times 10 = 100$ $100 \div 10 = 10$
17. How many tens are there in 100?
18. How many tens are there in 300?
19. How many tens are there in 160?
20. 10 is contained in 100 how many times?
21. 10 is contained in 200 how many times?
22. 10 is contained in 180 how many times?

23. Add:

48	71	84	56	44
61	85	72	63	83

24. Add:

74	46	75	86	73
65	63	83	93	84

Be sure at this point that the pupils know the multiplication and division facts through the table of fives.

1. In 3 bu. there are 12 pecks. How many pecks are there in 1 bushel?

2. When 5 oranges cost 20 cents, what is the price of 1 orange?

3. In 4 weeks there are 28 days. How many days are there in a week?

4. If a horse travels 21 miles in 3 hours, how many miles does he travel in an hour?

5. If there are 60 trees in 5 rows, how many trees are there in each row?

6. If 4 pencils cost 16 cents, what is the price of 1 pencil?

7. I bought 5 blank-books for 50 cents. What was the price of 1 book?

8. There are 36 quarts of oil in a barrel. How many gallons are there?

9. When 4 barrels of flour cost $24, what is the cost of 1 barrel?

10. There are 60 inches in 5 feet. How many inches are there in 1 foot?

11. When 5 tons of coal cost $30, what is the price of 1 ton? What is the price of half a ton?

12. When a pound of dates cost 20 cents, how much ought I to pay for a quarter of a pound?

13. If a man earns $3 a day, how many days must he work to earn $27?

14. When 5 quarts of milk cost 35 cents, what is the price of a quart?

15. When 4 yards of ribbon cost 32 cents, what is the price of a yard? What is the price of $\frac{1}{2}$ of a yard? Of $\frac{1}{4}$ of a yard?

Add and subtract:

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
18	19	18	24	13	19	36	45	66	91
16	12	17	19	7	3	27	24	48	71

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
21	32	43	52	36	41	94	75	61	72
17	28	16	29	28	29	76	25	44	26

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
48	36	76	55	63	72	89	98	71	63
24	18	29	45	53	56	72	89	54	50

31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
17	28	39	48	57	68	79	85	94	42
12	17	26	46	44	53	61	72	76	24

41. 42. 43. 44. 45. 46. 47. 48. 49. 50.

51. $7 + 8 + 9 + 4 + 6 + 8 + 5 + 7 + 4 + 3 = ?$
52. $9 + 7 + 7 + 6 + 8 + 9 + 7 + 6 + 8 + 9 = ?$
53. $8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 + 0 + 7 = ?$
54. $9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 + 0 = ?$
55. $4 + 6 + 9 + 7 + 8 + 9 + 6 + 5 + 8 + 7 = ?$
56. $6 + 5 + 4 + 7 + 9 + 8 + 7 + 8 + 5 + 4 = ?$
57. $7 + 8 + 9 + 6 + 4 + 9 + 8 + 7 + 6 + 5 = ?$
58. $8 + 4 + 7 + 3 + 2 + 1 + 7 + 5 + 9 + 8 = ?$
59. $6 + 7 + 8 + 8 + 7 + 7 + 9 + 4 + 7 + 6 = ?$

60.	61.	62.	63.	64.	65.	66.	67.	68.	69.
66	75	40	34	55	57	85	80	90	80
32	46	28	16	28	29	68	47	32	35

(See note on page 5.)
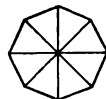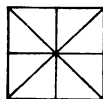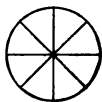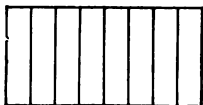
1. Into how many equal parts is each of these figures divided?

2. What is each part called?

3. Draw a line 8 inches long; mark off $\frac{1}{8}$ of it.

4. How many inches in the piece you cut off?

5. Draw a rectangle 8 inches long and 1 inch wide; divide it into square inches. Mark off $\frac{1}{8}$ of it.

6. Draw a rectangle that is 4 inches long and 2 inches wide; divide it into square inches, and mark off $\frac{1}{8}$ of it.

7. What part of 8 squares is 1 square?

8. What part of 8 inches is 1 inch?

9. What part of 8 apples is 1 apple?

10. What is $\frac{1}{8}$ of 8? $\frac{2}{8}$ of 8? $\frac{6}{8}$ of 8?

11. How many eighths are $\frac{6}{8} - \frac{4}{8}$?

12. How many eighths are in $\frac{1}{2}$ of an apple?

13. 3 is $\frac{1}{8}$ of what number?

14. $\frac{1}{8}$ of 16 and $\frac{1}{4}$ of 16 are how many?

15. 2 is $\frac{1}{8}$ of what number?

16. Among how many children can you divide an orange if you give each child $\frac{2}{8}$ of it?

17.
$$\frac{1}{8} + \frac{1}{8} = ? \qquad \frac{1}{8} + \frac{5}{8} = ? \qquad \frac{2}{8} + \frac{3}{8} = ? \qquad \frac{3}{8} + \frac{3}{8} = ?$$
$$\frac{1}{8} + \frac{2}{8} = ? \qquad \frac{1}{8} + \frac{6}{8} = ? \qquad \frac{2}{8} + \frac{4}{8} = ? \qquad \frac{3}{8} + \frac{4}{8} = ?$$
$$\frac{1}{8} + \frac{3}{8} = ? \qquad \frac{1}{8} + \frac{7}{8} = ? \qquad \frac{2}{8} + \frac{5}{8} = ? \qquad \frac{3}{8} + \frac{5}{8} = ?$$
$$\frac{1}{8} + \frac{4}{8} = ? \qquad \frac{2}{8} + \frac{2}{8} = ? \qquad \frac{2}{8} + \frac{6}{8} = ? \qquad \frac{4}{8} + \frac{4}{8} = ?$$

18.
$$\frac{8}{8} - \frac{1}{8} = ? \qquad \frac{6}{8} - \frac{2}{8} = ? \qquad \frac{8}{8} - \frac{5}{8} = ? \qquad \frac{7}{8} - \frac{5}{8} = ?$$
$$\frac{8}{8} - \frac{6}{8} = ? \qquad \frac{8}{8} - \frac{5}{8} = ? \qquad \frac{7}{8} - \frac{3}{8} = ? \qquad \frac{7}{8} - \frac{2}{8} = ?$$
$$\frac{8}{8} - \frac{4}{8} = ? \qquad \frac{4}{8} - \frac{2}{8} = ? \qquad \frac{6}{8} - \frac{3}{8} = ? \qquad \frac{6}{8} - \frac{5}{8} = ?$$
$$\frac{8}{8} - \frac{3}{8} = ? \qquad \frac{8}{8} - \frac{7}{8} = ? \qquad \frac{5}{8} - \frac{3}{8} = ? \qquad \frac{5}{8} - \frac{2}{8} = ?$$

Copy, fill blanks, and learn :

$1 \times 6 = ?$	$4 \times 6 = ?$	$7 \times 6 = 42$	$10 \times 6 = 60$
$2 \times 6 = ?$	$5 \times 6 = ?$	$8 \times 6 = 48$	$11 \times 6 = 66$
$3 \times 6 = ?$	$6 \times 6 = 36$	$9 \times 6 = 54$	$12 \times 6 = 72$

1. Harold sold 8 quarts of berries at 6 cents a quart. How much did he receive for the berries?

2. What is the cost of 9 yards of ribbon at 6 cents a yard?

3. At $6 a barrel what will 7 barrels of flour cost?

4. If a horse travels 6 miles an hour, how far will he travel in 5 hours?

5. What is the cost of 12 pounds of sugar at 6 cents a pound?

6. At $6 a ton, what will 11 tons of coal cost?

7. When 6 oranges cost 18 cents, what is the price of one orange?

8. If a horse travels 48 miles in 6 hours, how many miles does he travel in an hour?

9. If a boy earns $6 a week, how many weeks must he work to earn $42?

10. If 6 boxes of butter weigh 36 pounds, what is their average weight?

11. When 6 pounds of sugar are worth 48 cents, what is a pound worth? What is half a pound worth?

12. When milk is worth 6 cents a quart, how much must be paid for half a gallon?

13. What must I pay for 2 gallons of milk at 6 cents a quart?

14. If 6 yards of silk plush cost $72, what is the price of a yard?

15. I have 54 cents to spend for Christmas cards. If I pay 6 cents each, how many can I buy?

16. Divide 18 cents into 6 equal parts. How many cents are there in each part?

In multiplication, multiply the units first, and then the tens.

Multiply 24 by 2.

$$\begin{array}{r} 24 \\ 2 \\ \hline 48 \end{array}$$

First multiply the units by the multiplier. 2 times 4 units are 8 units; write it under units. 2 times 2 tens are 4 tens; write it under tens. The answer is 4 tens and 8 units, or 48.

Multiply:

1.	2.	3.	4.	5.	6.	7.	8.
64	72	91	33	51	24	32	33
2	3	6	2	6	2	4	3

9.	10.	11.	12.	13.	14.	15.	16.
30	23	90	82	74	22	34	63
5	3	6	4	2	4	2	3

17.	18.	19.	20.	21.	22.	23.	24.
44	52	64	81	80	79	14	88
2	4	2	5	6	1	2	1

25.	26.	27.	28.	29.	30.	31.	32.
12	13	31	42	41	41	50	61
3	3	6	4	5	6	5	6

33.	34.	35.	36.	37.	38.	39.	40.
64	73	82	46	53	66	82	14
2	3	2	1	3	1	3	2

41.	42.	43.	44.	45.	46.	47.	48.	49.	50.
20	21	32	43	50	54	61	72	83	92
5	6	4	3	6	2	5	3	2	2

(Review pages 30, 72.)

1. Draw a rectangle 12 inches long and 5 inches wide. Divide it into square inches. How many are there?

2. How many rows have you running lengthwise? How many inch squares in each row?

3. If you have 5 rows, and there are 12 squares in each row, you have 5 times 12 squares, which are —— squares.

Find the area of the following:

4. A rectangle, 10 inches by 5 inches.

5. A square, measuring 5 inches on a side.

6. A rectangle, 12 inches by 4 inches.

7. A rectangle, 11 inches by 3 inches.

8. A rectangle, 9 inches by 5 inches.

9. How can you find the area of squares and rectangles a shorter way than by dividing them into inch squares and counting the number?

10. Find the perimeter of each one of the rectangles just given.

11. Draw a rectangle 10 inches by 4 inches. Divide it into 2 right-triangles. What part of the rectangle is each triangle? What is the area of each?

Find the perimeter and area of:

12. A rectangle, 9 inches by 4 inches.

13. A square, measuring 4 inches on a side.

14. A rectangle, 4 inches by 6 inches.

15. A rectangle, 3 inches by 9 inches.

16. A rectangle, 4 inches by 12 inches.

17. A rectangle, 7 inches by 4 inches.

18. A square, measuring 3 inches on a side.

19. A rectangle, 8 inches by 3 inches.

20. A rectangle, 6 inches by 5 inches.

21. A rectangle, 12 inches by 5 inches.

22. A square measuring 6 inches on a side.

Copy, fill blanks, and learn:

$1 \times 7 = ?$	$4 \times 7 = ?$	$7 \times 7 = 49$	$10 \times 7 = 70$
$2 \times 7 = ?$	$5 \times 7 = 35$	$8 \times 7 = 56$	$11 \times 7 = 77$
$3 \times 7 = ?$	$6 \times 7 = 42$	$9 \times 7 = 63$	$12 \times 7 = 84$

Drill on this table till correct answers are given automatically.

1. Alice has 35 cents to spend for flowers. If she spends 7 cents for each plant, how many plants can she buy?

2. Give 49 pinks to 7 children. How many will each receive if you divide them equally?

3. At 7 cents a yard, how many yards of ribbon can you buy for 42 cents?

4. Samuel planted 35 currant bushes in 7 rows. How many were there in each row?

5. 7 is what part of 21? 7 is $\frac{1}{3}$ of what number?

6. Mary counted 7 red roses on each of 8 bushes. How many roses did she count?

7. 28 pounds of honey were packed in 7 jars of equal size. How many pounds were in each jar?

8. Mary found 7 eggs each day for a week. How many eggs did she find? How many more than 4 dozen eggs did she find?

9. There are 7 electric lights on each street. How many lights are there on 12 streets?

10. How many days are there in 11 weeks?

11. 7 days is what part of 2 weeks?

12. How many weeks are there in 56 days?

13. One side of a square is 7 inches. What is the perimeter of the square?

14. If pens cost 7 cents a dozen, how much will 6 dozen cost?

15. Grace had a piece of ribbon 28 inches long; she divided it into 7 equal pieces. How long was each piece?

In addition to the illustration below, use the fractional disks to prove this lesson.
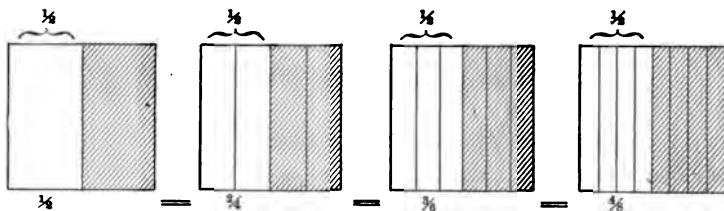
1. Into how many parts is the first figure divided? How many parts are shaded?

2. Into how many parts is the second figure divided? How many parts are shaded?

3. How do the parts shaded in the first and second figure compare in size?

4. What can you say then about $\frac{1}{2}$ and $\frac{2}{4}$?

5. Draw 2 lines, and prove that $\frac{1}{2}$ equals $\frac{2}{4}$.

6. Into how many parts is the third figure divided? How many parts are shaded?

7. How does the size of the part shaded in the third figure compare with the size of the part shaded in the first figure? Second?

8. What can you say then about $\frac{1}{2}$ and $\frac{3}{6}$? About $\frac{2}{4}$ and $\frac{3}{6}$?

9. Prove by lines that $\frac{1}{2}$, $\frac{2}{4}$, and $\frac{3}{6}$ are alike.

10. Into how many parts is the fourth figure divided? How many parts are shaded?

11. How does the size of the part shaded in the fourth figure compare with the size of the parts shaded in the other figures?

12. What is true then of $\frac{1}{2}$ and $\frac{4}{8}$? $\frac{2}{4}$ and $\frac{4}{8}$? $\frac{3}{6}$ and $\frac{4}{8}$?

13. Prove by lines that $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$, and $\frac{4}{8}$ are alike.

14. Draw 4 rectangles 8 inches long and 1 inch wide. Prove from those rectangles that $\frac{1}{2}$ equals $\frac{4}{8}$. $\frac{2}{4}$ equals $\frac{3}{6}$.

(See pages 79, 90.)

1.

$\frac{1}{2} + \frac{1}{2} = $

$\frac{1}{3} + \frac{1}{3} = $

$\frac{1}{4} + \frac{1}{4} = $

$\frac{2}{8} + \frac{1}{8} = $

2.

$\frac{1}{3} + \frac{2}{3} = $

$\frac{1}{4} + \frac{2}{4} = $

$\frac{1}{4} + \frac{3}{4} = $

$\frac{1}{8} + \frac{2}{8} = $

3.

$\frac{1}{8} + \frac{3}{8} = $

$\frac{1}{8} + \frac{1}{8} = $

$\frac{1}{8} + \frac{6}{8} = $

$\frac{1}{8} + \frac{1}{8} = $

4.

$\frac{1}{8} + \frac{3}{8} = $

$\frac{1}{8} + \frac{3}{8} = $

$\frac{1}{8} + \frac{1}{8} = $

$\frac{1}{8} + \frac{5}{8} = $

5.

$\frac{1}{8} + \frac{6}{8} = $

$\frac{1}{8} + \frac{1}{8} = $

$\frac{2}{4} + \frac{1}{4} = $

$\frac{2}{8} + \frac{2}{8} = $

6.

$\frac{3}{8} + \frac{3}{8} = $

$\frac{3}{8} + \frac{3}{8} = $

$\frac{3}{8} + \frac{1}{8} = $

$\frac{1}{8} + \frac{1}{8} = $

7.

$\frac{1}{2} = $

$\frac{1}{2} = $

$\frac{1}{2} = $

8.

$\frac{2}{3} = $

$\frac{2}{3} = $

$\frac{2}{3} = $

9.

$\frac{1}{4} = $

$\frac{2}{4} = $

$\frac{3}{4} = $

10.

$\frac{2}{4} = $

$\frac{2}{3} = $

$\frac{1}{8} = $

11.

$\frac{3}{8} + \frac{1}{8} = $

$\frac{3}{8} + \frac{1}{8} = $

$\frac{3}{8} + \frac{5}{8} = $

$\frac{3}{8} + \frac{3}{8} = $

$\frac{1}{3} + \frac{1}{3} = $

12.

$\frac{3}{8} + \frac{3}{8} = $

$\frac{1}{8} + \frac{2}{8} = $

$\frac{1}{8} + \frac{1}{8} = $

$\frac{3}{8} + \frac{3}{8} = $

$\frac{1}{4} + \frac{1}{4} = $

13.

$\frac{3}{8} + \frac{1}{8} = $

$\frac{3}{8} + \frac{6}{8} = $

$\frac{3}{8} + \frac{6}{8} = $

$\frac{3}{8} + \frac{6}{8} = $

$\frac{1}{8} + \frac{1}{8} = $

14.

$\frac{1}{2} - \frac{1}{4} = $

$\frac{3}{4} - \frac{1}{2} = $

$\frac{2}{4} - \frac{1}{4} = $

$1 - \frac{1}{4} = $

$1 - \frac{1}{2} = $

15.

$\frac{3}{8} - \frac{1}{8} = $

$\frac{3}{8} - \frac{1}{8} = $

$\frac{3}{8} - \frac{1}{3} = $

$1 - \frac{1}{3} = $

$1 - \frac{2}{3} = $

16.

$\frac{1}{8} + \frac{1}{2} = $

$\frac{1}{8} + \frac{2}{4} = $

$\frac{3}{8} + \frac{1}{4} = $

$\frac{3}{8} + \frac{1}{2} = $

$\frac{1}{8} + \frac{1}{4} = $

1. A boy had 20 marbles, and lost 12, and then bought 4. How many did he then have?

2. If you can walk 3 miles an hour, and your brother Fred can walk 5 miles an hour, how much farther can Fred walk in an hour than you can? How much farther can he walk in 12 hours?

3. If you have been in school 60 days, how many weeks have you been in school if school keeps 5 days a week?

4. A man gave $60 for sheep, at the rate of $5 a head. How many did he buy?

5. How many melons at 7$ each can be bought for 84 cents?

6. What is $\frac{1}{3}$ of 9? 15? 30? 21? 36?

7. What is $\frac{1}{4}$ of 8? 20? 32? 48? 16?

8. What is $\frac{1}{2}$ of 16? 22? 24? 30? 12?

9. What is $\frac{1}{6}$ of 12? 42? 30? 18? 24?

10. If 4 oranges cost 24 cents, how much will 1 orange cost? How much will 7 oranges cost?

11. If a man travels 15 miles in 3 hours, how far can he travel in 1 hour? How far can he travel in 7 hours?

12. How many coats can be cut from 21 yd. of cloth if each coat takes 3 yards?

13. 7 is $\frac{1}{4}$ of what number?

14. $\frac{1}{3}$ of a gallon of vinegar costs 2 cents, what will 1 gal. cost?

15. What will a barrel of oil cost, if $\frac{1}{4}$ of a barrel cost $3?

16. If $\frac{1}{3}$ of a pound of cheese cost 5 cents, how much will 1 pound cost?

17. What will 1 qt. of molasses cost, if 4 gills cost 10 cents? What will 1 gal. cost?

18. In 12 gallons, how many quarts?

19. In 3 quarts, how many pints? Gills?

24   Multiply 24 by 6.
 6   6 times 4 units are 24 units, which equal 4 units
——
24   and 2 tens.   Write the units under units, and tens
12   under tens.   6 times two tens are 12 tens, which
——
144   are equal to 2 tens and 1 hundred.   Write the tens
        in the column of tens, and the hundred in the col-
umn of hundreds.   Now add, and your product is 144.

24   This shorter method should be taught as soon
 6   as the pupils understand the first method.   Here
——
144   we say 6 times 4 units are are 24 units; write the
        4 units, and keep the 2 tens for the tens column.
6 times 2 tens are 12 tens, and 2 tens make 14 tens.

Multiply :

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
28	32	46	54	66	73	27	64	49	67
6	5	7	6	5	4	5	6	7	6

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
25	35	48	56	64	78	85	98	39	84
6	4	2	3	4	7	5	6	7	6

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
23	81	19	42	37	49	61	88	75	64
6	4	3	5	2	3	7	6	5	5

31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
17	38	47	55	68	92	77	82	45	72
3	6	4	7	5	6	2	5	5	6

41.	42.	43.	44.	45.	46.	47.	48.	49.	50.
45	52	23	61	99	78	69	82	73	45
3	5	7	6	2	4	6	7	5	7

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
28	71	48	78	64	46	74	43	78	67
18	56	63	88	63	56	84	56	66	43
64	73	82	96	66	66	94	93	98	84

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
27	48	75	76	47	45	33	47	59	68
36	26	81	86	36	65	78	63	68	78
45	35	96	63	81	75	96	72	77	45
73	38	74	91	45	95	75	95	66	75

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
78	45	64	14	27	75	76	84	16	16
66	32	73	25	17	86	95	76	28	45
74	28	86	86	46	94	17	93	35	73
85	78	91	97	53	73	42	65	92	82
93	99	29	75	68	87	15	78	83	69
65	26	47	88	89	96	89	75	71	78

31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
21	63	44	64	16	51	63	50	16	45
45	57	36	51	34	50	21	29	34	52
16	91	82	37	13	15	57	71	73	23
85	36	33	23	11	29	45	14	81	20
35	86	55	45	32	12	91	97	13	31
45	31	74	51	35	71	16	29	32	61
86	62	14	72	47	21	36	69	24	99

41.	42.	43.	44.	45.	46.	47.	48.	49.	50.
31	41	88	63	34	42	55	32	48	97
73	28	72	44	27	23	45	48	83	77
44	47	44	27	54	76	75	36	36	74
69	54	36	88	45	64	36	84	69	48

1. Copy, fill blanks, and learn:

$1 \times 8 = ?$	$5 \times 8 = 40$	$9 \times 8 = 72$
$2 \times 8 = ?$	$6 \times 8 = 48$	$10 \times 8 = 80$
$3 \times 8 = ?$	$7 \times 8 = 56$	$11 \times 8 = 88$
$4 \times 8 = ?$	$8 \times 8 = 64$	$12 \times 8 = 96$

2. Count by 8's to 96.

3. How many inches in the perimeter of an 8-inch square?

4. How many square inches in the same square?

5. How many times can you fill an 8-gallon keg from a barrel that holds 48 gallons?

6. How much must you pay for 4 cakes of soap at 8 cents a cake?

7. What is $\frac{1}{8}$ of 16? 32? 96? 64? 48?

8. How many bushels are there in 56 pecks? In 72 pecks? In 24 pecks?

9. In an orchard there are 48 trees. If there are 8 rows, how many trees are in each row?

10. 8 is $\frac{1}{8}$ of what number?

11. What is the cost of 4 pounds of lard at 8 cents a pound?

12. How much will half a peck of beans cost at 8 cents a quart?

13. If a man earns $12 a week, how much will he earn in 8 weeks?

14. How many quarts are there in 7 pecks?

15. When 8 barrels of flour cost $48, what is the cost of one barrel?

16. How many clocks can you buy for $72, at $8 each?

17. A farmer having 80 bushels of apples, sold $\frac{1}{8}$ of them. How many did he sell?

18. If I earn $8 a week, how much do I earn in seven weeks?

1. What will 8 pounds of tea cost, at 45 cents a pound?

2. What will 6 cakes of soap cost, at 25 cents a cake?

3. What will 7 pounds of tea cost, at 16 cents a pound?

4. George sold 8 hens at 40 cents each. How much money did he receive?

5. How many pecks are there in 64 quarts?

6. How many quarts are there in 7 pecks and 5 quarts?

7. If 9 cords of wood cost $36, what will 1 cord cost? What will 12 cords cost?

8. A farmer having 35 acres of land, sold 12 of them. How many acres did he have left? What were they worth at $8 an acre?

9. How many yards of silk, at $5 a yard, can you buy for $45?

10. How many yards of silk, at $7 a yard, can you buy for $63?

11. What will 1 pound of nails cost, if 5 pounds cost 35 cents?

12. I had $54, and spent $\frac{1}{6}$ of it. How much did I spend? How much had I left?

13. At 20 cents a pound, what will $1\frac{1}{2}$ pound of meat cost?

14. What is the distance round a book 12 inches long and 10 inches wide?

15. A farmer sold 9 sheep at $5 each, and 5 lambs at $3 each. How much did he receive for them all?

16. Bought a barrel of pork for $21, and another for $18. What did they both cost? If I sold them both for $42, what was my gain?

17. If you spend 17 cents for candy, and 28 cents for a ball, how much will you spend in all?

(Review pages 4, 72.)
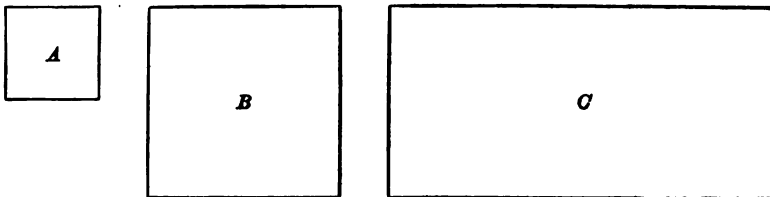
1. Cut paper of the same size as *A*, *B*, and *C*.
2. How many times larger is *B* than *A* ?
3. How many times larger is *C* than *B* ?
4. *C* is how many times larger than *A* ?
5. How many inches in the perimeter of *A* ?
6. How many inches in the perimeter of *B* ?
7. How many inches in the perimeter of *C* ?
8. Draw a diagonal in *B*.
9. Draw a diagonal in *C*.
10. Into what is each divided by its diagonal?
11. Find the area of a rectangular flower-bed 8 feet by 6 feet.
12. Find the perimeter of a square table 6 ft. on each side.
13. Draw a rectangle that contains 28 square inches.
14. If a rectangle contains 32 sq. ft., and its length is 8 ft., how wide is it ?
15. If a rectangle contains 24 sq. ft., and its width is 4 ft., what is its length ?
16. Draw a square that contains 49 square inches.
17. Draw a rectangle that contains 30 square inches.
18. Find the number of square inches in 1 page of your book.
19. Find the number of square inches in your slate.
20. Find the number of square feet in the top of your desk.
21. Draw a square that contains 36 square inches.
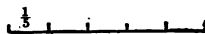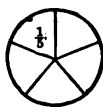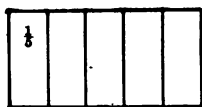
1. Point to one part of the rectangle.
2. What is one part called?
3. Point to one part of the pentagon.
4. Point to one part of the circle.
5. Point to one part of the line.
6. Draw a rectangle 5 inches long, and 1 inch wide. Divide it into 5 equal parts.   Cross off ⅕ of it.
7. Illustrate by lines:

⅕ of 5	⅖ of 5	⅗ of 5	⅘ of 5
⅕ of 10	⅖ of 10	⅗ of 10	⅘ of 10
⅕ of 15	⅖ of 15	⅗ of 15	⅘ of 15

8. What part of 5 is 1?
9. What part of 5 is 2?
10. What part of 15 is 5?
11. What part of 10 is 2?
12. How much money have you if 3 cents is ⅕ of it?
13. How many marbles have you if 2 is ⅕ of them?
14. Place 15 blocks on your desk; take away ⅓ of them; take away 2 blocks more; take away ½ of what remain. How many are left?
15. Place 6 blocks on your desk; take ½ as many more; take 1 more; take away ⅕ of what you have; take away ¼ of what are now left.   How many blocks have you?
16. Make 5 examples, using the fraction ⅕ in each.
17. Which is larger, ⅕ of 6, or ⅑ of 18?
18. Which is larger, ½ of 12, or ⅓ of 12?
19. Which is larger, ⅗ of 15, or ⅕ of 15?
20. Which is larger, ⅓ of 12, or ¼ of 12?
21. Which is larger, ¼ of 16, or ⅓ of 15?
22. Which is larger, ⅗ of 12, or ⅘ of 10?

Divide:

1.	2.	3.	4.	5.	6.	7.
2)4	3)6	2)12	4)16	6)36	5)30	7)35

8.	9.	10.	11.	12.	13.	14.
2)12	2)14	2)16	2)18	2)20	2)22	2)24

15.	16.	17.	18.	19.	20.	21.
3)9	3)12	3)15	3)18	3)21	3)30	3)33

22.	23.	24.	25.	26.	27.	28.
4)12	4)16	4)24	4)32	4)40	4)48	4)44

29.	30.	31.	32.	33.	34.	35.
5)15	5)25	5)40	5)35	5)50	5)60	5)45

	36.	37.	38.	39.	40.	41.	42.
Subtract:	42	82	84	62	44	86	53
	28	24	66	48	26	49	36

	43.	44.	45.	46.	47.	48.	49.
Subtract:	93	36	63	69	96	71	67
	36	29	39	36	48	58	39

	50.	51.	52.	53.	54.	55.	56.
Subtract:	84	61	24	35	41	85	92
	57	34	17	29	37	67	84

	57.	58.	59.	60.	61.	62.	63.
Subtract:	71	42	66	80	96	83	64
	38	18	47	56	77	66	55

(Review the tables of measures on pages 24, 29, 31, 36.)

1. How many quarts in 10 pints? 18 pints? 24 pints?

2. How many pints in 46 quarts? 38 quarts?

3. How many gallons in 36 quarts? 48 quarts? 40 quarts?

4. How many quarts in 17 gallons? 23 gallons? 37 gallons?

5. How many months are there in 7 years?

6. How many inches are there in 4½ feet? In 7 feet?

7. How many yards are there in 36 feet? 27 feet?

8. How many feet in 24 inches? 36 inches?

9. A post is 8 feet 7 inches high. How many inches high is it?

10. If your mother takes 2 quarts of milk a day, how many quarts will she take in a week? At 6 cents a quart, how much will the milk cost for a week?

11. When oil is worth 20 cents a gallon, how much can be bought for 5 cents?

12. A farmer brought to market 8 bu. 3 pk. of apples. How many pecks did he have?

13. When milk is 3 cents a pint, how many quarts can I buy for 36 cents?

14. Find the area of a walk 49 ft. long and 4 ft. wide.

15. If you should gather a bushel of chestnuts, and sell a peck, and give a peck to your brother, how many pecks would you have left?

16. If you had a peck of nuts, and should give 1 quart to one boy and 2 pints to another, how many quarts would you have left?

17. How many quarts of nuts would you have, if you had ½ of a bushel?

18. If you had ½ bushel of nuts, to how many persons could you sell 2 quarts each?

1. Copy, fill blanks, and learn :

$1 \times 9 = ?$	$5 \times 9 = 45$	$9 \times 9 = 81$
$2 \times 9 = ?$	$6 \times 9 = 54$	$10 \times 9 = 90$
$3 \times 9 = ?$	$7 \times 9 = 63$	$11 \times 9 = 99$
$4 \times 9 = 36$	$8 \times 9 = 72$	$12 \times 9 = 108$

2. At 9 cents a quart, what will 7 quarts of berries cost?

3. At 9 cents a quart, what will 9 quarts of berries cost?

4. If a man earns $12 a week, and spends $4 a week, how much will he save in 1 week? In 9 weeks?

5. If 9 sheep cost $72, what will 1 sheep cost?

6. How many square feet are there in 1 square yard? In 8 square yards?

7. If you received 18 cents for selling berries at 9 cents a quart, how many quarts did you sell?

8. If a man earns $9 a day, how much will he earn in a week?

9. A boy lost 9 marbles, which was $\frac{1}{6}$ of all he had. How many marbles had he at first?

10. In an orchard there are 7 rows of trees, and 9 trees in a row. How many trees are there in the orchard?

11. How much must you pay, if you buy 7 yards of cloth at 9 cents a yard?

12. A farmer had 9 sheep in each of six pastures. How many sheep had he?

13. 9 is $\frac{1}{5}$ of what number? $\frac{1}{8}$ of what number?

14. A horse travels 9 miles an hour. How long will it take him to travel 72 miles? 54 miles?

15. Charles has 9 five-dollar bills. How many dollars has he?

16. Divide 72 cents equally among 9 boys. How many cents will each boy receive?

17. Find the perimeter of a 9-inch square.

18
4)72
2

Four is contained in 7 tens, one ten times, and three tens over. Three tens are 30 units, and 2 units make 32 units. 4 is contained in 32 units 8 units times.

For a few weeks allow the pupils to write the first remainder, as 3 in the illustrative example. All division, where the divisor is a single figure, should be done by short division.

42
6) 252

6 is contained in 25 tens 4 tens times and one ten over. 1 ten and 2 units are 12 units. 6 is contained in 12 units 2 units times.

1.	2.	3.	4.	5.	6.	7.
3)45	4)52	5)65	6)84	7)91	8)96	9)108

8.	9.	10.	11.	12.	13.	14.
3)51	3)48	3)54	3)72	3)84	3)87	3)96

15.	16.	17.	18.	19.	20.	21.
4)52	4)60	4)68	4)72	4)92	4)100	4)64

22.	23.	24.	25.	26.	27.	28.
5)65	5)75	5)85	5)70	5)90	5)80	5)85

29.	30.	31.	32.	33.	34.	35.
6)66	6)72	6)84	6)78	6)90	6)96	6)102

36.	37.	38.	39.	40.	41.	42.
7)70	7)84	7)91	7)105	7)98	7)210	7)154

43.	44.	45.	46.	47.	48.	49.
8)64	8)80	8)96	8)128	8)104	8)256	8)72

50.	51.	52.	53.	54.	55.	56.
9)99	9)108	9)216	9)162	9)378	9)252	9)126

57.	58.	59.	60.	61.	62.	63.
3)156	4)136	5)235	6)108	7)245	8)424	9)819

1. Divide by 3 :

75   66   48   81   54   93   72   57   69   84   75

2. Divide by 2 :

60   42   72   94   54   86   64   76   88   96   78

3. Divide by 4 :

24   88   64   72   92   52   72   36   48   88   84

4. Divide by 5 :

55   65   75   80   60   90   100   85   95   45   105

5. Divide by 6 :

66   84   96   90   48   54   78   102   72   78   108

6. Divide by 8 :

128   88   64   96   80   56   72   120   112   136   104

7. Divide by 7 :

77   84   98   70   63   91   126   133   119   105   112

8. Divide by 9 :

99   72   90   81   108   135   117   126   144   162   171

9. 4)72   7)84   8)96   9)117   5)105   6)72

10. 6)90   3)75   4)88   6)78   8)88   9)153

11. 7)126   8)168   9)189   6)144   7)133   5)165

12. 8)144   3)171   6)186   9)135   7)154   2)184

13. 6)174   7)161   8)152   9)180   5)185   4)148

14. 5)155   6)156   4)136   7)175   3)198   8)176

ORAL.

1.	2.	3.	4.
$\frac{1}{2} + \frac{1}{2} = ?$	$\frac{1}{4} + \frac{1}{4} = ?$	$\frac{3}{4} + \frac{3}{4} = ?$	$\frac{1}{3} + \frac{1}{3} = ?$
$\frac{1}{3} + \frac{1}{3} = ?$	$\frac{1}{4} + \frac{2}{4} = ?$	$\frac{3}{4} + \frac{1}{4} = ?$	$\frac{2}{3} + \frac{2}{3} = ?$
$\frac{1}{3} + \frac{2}{3} = ?$	$\frac{1}{4} + \frac{3}{4} = ?$	$\frac{3}{4} + \frac{1}{4} = ?$	$\frac{2}{3} + \frac{2}{3} = ?$

5.	6.	7.	8.
$\frac{1}{3} + \frac{2}{3} = ?$	$\frac{1}{5} + \frac{4}{5} = ?$	$\frac{2}{5} + \frac{1}{5} = ?$	$\frac{1}{6} + \frac{1}{6} = ?$
$\frac{1}{3} + \frac{1}{3} = ?$	$\frac{1}{5} + \frac{3}{5} = ?$	$\frac{3}{5} + \frac{2}{5} = ?$	$\frac{1}{6} + \frac{2}{6} = ?$
$\frac{2}{3} + \frac{1}{3} = ?$	$\frac{1}{5} + \frac{1}{5} = ?$	$\frac{3}{5} + \frac{1}{5} = ?$	$\frac{2}{6} + \frac{3}{6} = ?$

9.	10.	11.	12.
$\frac{3}{8} - \frac{1}{8} = ?$	$\frac{3}{8} - \frac{1}{8} = ?$	$\frac{5}{8} - \frac{1}{8} = ?$	$\frac{5}{8} - \frac{3}{8} = ?$
$\frac{5}{8} - \frac{2}{8} = ?$	$\frac{5}{8} - \frac{4}{8} = ?$	$\frac{7}{8} - \frac{3}{8} = ?$	$\frac{5}{8} - \frac{1}{8} = ?$
$\frac{5}{8} - \frac{3}{8} = ?$	$\frac{5}{8} - \frac{4}{8} = ?$	$\frac{7}{8} - \frac{5}{8} = ?$	$\frac{5}{8} - \frac{1}{8} = ?$

13.	14.	15.	16.
$1 - \frac{1}{4} = ?$	$1 - \frac{1}{2} = ?$	$1 - \frac{1}{3} = ?$	$1 - \frac{1}{5} = ?$
$1 - \frac{4}{8} = ?$	$1 - \frac{1}{4} = ?$	$1 - \frac{2}{3} = ?$	$1 - \frac{2}{3} = ?$
$1 - \frac{3}{4} = ?$	$1 - \frac{1}{4} = ?$	$1 - \frac{1}{2} = ?$	$1 - \frac{5}{8} = ?$

17.	18.	19.	20.
$\frac{1}{2} = \overline{4}$	$\frac{1}{2} = \overline{6}$	$\frac{2}{3} = \overline{4}$	$\frac{2}{4} = \overline{8}$
$\frac{1}{3} = \overline{6}$	$\frac{1}{3} = \overline{9}$	$\frac{1}{3} = \overline{9}$	$\frac{2}{4} = \overline{8}$
$\frac{1}{4} = \overline{8}$	$\frac{1}{2} = \overline{8}$	$\frac{3}{3} = \overline{6}$	$\frac{1}{4} = \overline{8}$

Put in the proper signs with the following numbers:

21.	7	4	28.	**22.**	3	3	9.	**23.**	7	2	14.
24.	12	4	3.	**25.**	14	7	2.	**26.**	6	6	0.
27.	6	5	11.	**28.**	5	3	15.	**29.**	10	2	5.
30.	9	6	3.	**31.**	14	8	6.	**32.**	4	4	16.
33.	5	9	14.	**34.**	5	8	13.	**35.**	15	10	5.
36.	6	8	14.	**37.**	12	3	36.	**38.**	42	7	6.
39.	17	9	8.	**40.**	8	7	56.	**41.**	27	9	3.

365   7 units and 5 units are 12 units, which are
487   equal to 1 ten and 2 units. Write the 2 units in
852   units column, and keep the 1 ten for tens column.
        1 ten, 8 tens, and 6 tens are 15 tens, which equals
1 hundred and 5 tens. Write the 5 tens in tens column,
and keep the 1 hundred for hundreds column. 1 hundred, 4 hundreds, and 3 hundreds are 8 hundreds. Write
it in hundreds column.

1.	2.	3.	4.	5.	6.
468	469	658	374	209	287
64	107	73	56	28	39
77	48	77	65	953	43
324	99	166	538	48	119

7.	8.	9.	10.	11.	12.
681	726	299	281	438	74
761	27	919	69	926	638
166	67	402	58	48	38
516	62	89	19	63	639

13.	14.	15.	16.	17.	18.
478	135	95	93	533	76
478	79	50	404	40	5
478	246	94	37	68	432
478	80	163	252	209	671
478	399	87	60	312	36

19.	20.	21.	22.	23.	24.
46	34	271	125	123	23
531	163	408	125	78	67
84	444	63	250	145	474
236	56	150	64	960	545

1. In a city there are 6 wards; in the first ward there are 379 voters, in the second 427, in the third 541, in the fourth 478, in the fifth 517, in the sixth 437. How many voters are there in the city?

2. A father gave to his eldest son $315, to the second $298, to the third $265, to the fourth $217. How many dollars did he give to all?

3. A owns 415 acres of land, B 319 acres, and C 515 acres. How many acres do they together own?

4. A farmer bought three horses. The first cost $185, the second $210, and the third $285. What did the three horses cost?

5. A dealer has 6 lots of coal. If they contain 260 tons, 315 tons, 360 tons, 417 tons, 566 tons, and 348 tons, respectively, how many tons are there in all?

6. A man traveled 467 miles by rail, 379 miles by stage, 194 miles by boat, and 78 miles on foot. How far did he travel?

7. A merchant's sales were $479 Monday, $496 Tuesday, $527 Wednesday, $398 Thursday, $416 Friday, $984 Saturday. Find the amount of his sales for the week.

8. A has $746, B has $898, C has $775, and D has as much as A, B, and C. How many dollars has D?

9. An encyclopedia consists of 5 volumes. In the first there are 674 pages, in the second 683, in the third 698, in the fourth 667, and in the fifth 685. Find the whole number of pages in the encyclopedia.

10. A man paid $550 for a lot. He built a house for $825, a barn for $236, a walk for $45, and a fence for $84. What did all cost him?

11. A man bought a house for a certain sum of money. He paid $365 at one time, $387 at another time, $492 at another, and $578 at another. How much money has he paid toward his house?

1. A boy spent 11¢ for candy, 9¢ for a ball, and 5¢ for a top. How many cents did he spend in all?

2. James bought a pigeon for 9¢, a squirrel for 10¢, and a rabbit for 12¢. How much did all cost?

3. In a class of 39 pupils, 25 were present. How many were absent?

4. If you buy a ball for 6 cents, for how much must you sell it to gain 4 cents?

5. What will 3 oranges cost at 6 cents each?

6. What will 4 ounces of cloves cost at 8¢ an ounce?

7. At 7 cents each, what will 9 pineapples cost?

8. If a stage-coach goes 9 miles in an hour, how far will it go in 9 hours?

9. How many barrels of flour, at $5 a barrel, can be bought for $20?

10. For $54, how many barrels of flour can be bought at $6 a barrel?

11. A man traveled 7 miles in an hour. At the same rate, how long would it take him to travel 63 miles?

12. At 7¢ a pound, how many pounds of fish can be bought for 84 cents?

13. 3 is $\frac{1}{4}$ of what number? 7 is $\frac{1}{3}$ of what number?

14. If $\frac{1}{3}$ of a melon costs 4 cents, what will 1 melon cost?

15. Find the cost of 3 pints of milk at 8¢ a quart.

16. If a piece of ribbon 6 in. long costs 4 cents, what will a piece 2 ft. long cost?

17. What is the distance round a square room 11 ft. on a side?

18. A man gave $35 for a wagon, and paid $4 for repairing it. How much did it cost him?

19. If you had 32 marbles, and lost $\frac{1}{4}$ of them, how many did you lose?

Review page 81.   If necessary use the splints for the first few lessons.   The explanation is so similar to that on page 81, that it does not seem necessary to repeat it here.

1.	2.	3.	4.	5.	6.
678	879	350	391	734	843
432	864	220	280	600	603

7.	8.	9.	10.	11.	12.
844	316	999	969	886	213
423	118	286	871	754	176

13.	14.	15.	16.	17.	18.
583	102	499	605	836	667
474	78	479	403	475	443

19.	20.	21.	22.	23.	24.
577	543	555	550	734	986
466	469	367	360	466	729

25.	26.	27.	28.	29.	30.
603	694	310	162	301	952
509	483	109	98	129	863

31.	32.	33.	34.	35.	36.
740	876	649	790	665	838
685	876	304	600	474	751

37.	38.	39.	40.	41.	42.
111	799	935	630	936	706
98	654	824	540	845	505

43.	44.	45.	46.	47.	48.
807	618	428	425	104	286
605	520	365	163	65	107

1. What is the difference between 404 and 297?

2. How much greater is 802 than 645?

3. One man has 305 sheep, and his neighbor has 142 sheep. How many more sheep has one man than the other?

4. A farmer had $245, and spent $196 for a horse and the rest for a cow. Find the cost of the cow.

5. A coal-dealer had 668 tons of coal. After selling a part he had 286 tons left. How many tons did he sell?

6. One book contains 361 pages. If this is 148 pages more than another book, how many pages are there in the second book?

7. A farmer raised 524 bu. of potatoes, and sold 365 bu. How many bushels had he left?

8. A man earns $975 in a year, and spends $786. How much does he save?

9. A man sold some goods for $691, which was $188 more than they cost. Find the cost of the goods.

10. A father gave his son $872 and his daughter $187 less. How much did he give his daughter?

11. A merchant sold 137 yd. from a piece of cloth 224 yd. in length. How many yards had he remaining?

12. A man borrowed $307. After returning $252, how much does he still owe?

13. Two men have $542. How much money has the first, if the second has $265?

14. If a man earns $750 and spends $265, how much money will he have left?

15. Mr. C's farm contains 472 acres. How many acres will he have left after selling 180 acres?

16. There are 234 pages in one book and 178 pages in another book. How many more pages in one book than in the other?
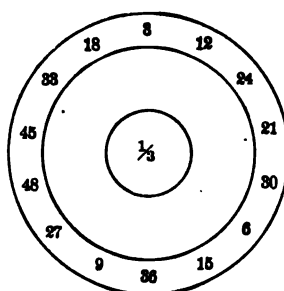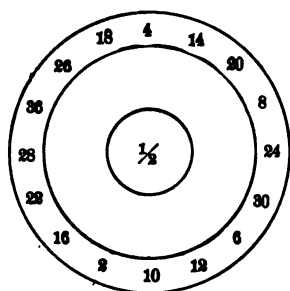
Find the fractional part indicated of each of the numbers in the ring.

1. Kate cut an orange into 3 equal parts, and then gave away 2 of the parts. How much of the orange did she give away?

2. Divide 15 apples equally among 3 girls. What part of all the apples will each girl receive? How many apples will each girl receive?

3. What is ½ of 18? ⅓ of 18? ⅔ of 18?

4. Divide 15 apples equally among 4 boys. How many apples will each boy receive?

5. If you wish to divide an apple equally among 5 boys, into how many equal parts must you divide it?

6. If you divide 2 apples equally among 5 boys, how many fifths will you give to each boy?

7. If you divide a pear into 4 equal parts, and give Susie 2 of the parts, how many fourths will you give Susie? How many halves will you give her?

8. Divide an apple so that you can give ⅕ to John, and ⅖ to Mary. How many fifths will you have left?

9. What is ⅕ of 20? ⅗ of 10? ⅔ of 30?

10. If you had 36 marbles, and gave George ½ of them, John ¼, and Harry ⅙, how many marbles would you give to each of the boys, and how many would you have left?

(See page 93.)

1.	2.	3.	4.	5.	6.
75	84	93	26	65	79
5	5	5	5	5	5

7.	8.	9.	10.	11.	12.
88	74	36	86	95	28
6	6	6	6	6	6

13.	14.	15.	16.	17.	18.
64	58	19	92	76	54
7	7	7	7	7	7

19.	20.	21.	22.	23.	24.
17	24	31	48	62	89
8	8	8	8	8	8

25.	26.	27.	28.	29.	30.
82	44	55	66	77	88
9	9	9	9	9	9

31.	32.	33.	34.	35.	36.
74	68	75	33	56	90
4	4	4	4	4	4

37.	38.	39.	40.	41.	42.
46	64	32	24	66	58
3	3	3	3	3	3

43.	44.	45	46.	47.	48.
96	14	45	47	74	54
7	6	5	8	9	4

Multiply 124 by 6.

124   For explanation of multiplication of tens and
  6   ones see page 93.   6 times 1 hundred is 6 hundred.
744   6 hundred and 1 hundred are 7 hundred.

NOTE. — Since some of the answers to examples on this page will be over
1000, teach the pupils that the fourth place in every number is called thousands.

Multiply :

1.	2.	3.	4.	5.	6.
242	264	165	236	119	365
2	3	4	5	6	7

7.	8.	9.	10.	11.	12.
273	763	633	338	385	854
8	3	5	9	7	6

13.	14.	15.	16.	17.	18.
546	464	647	472	727	279
5	8	6	9	4	8

19.	20.	21.	22.	23.	24.
798	987	878	786	869	698
3	2	4	5	7	6

25.	26.	27.	28.	29.	30.
369	693	934	349	493	937
9	8	4	7	5	3

31.	32.	33.	34.	35.	36.
375	754	548	486	868	687
8	6	5	9	3	4

1. How much must I pay for 9 cows at $27 each?

2. What will 8 readers cost at 17 cents each?

3. How much will a man pay for 3 suits of clothes at $45 each?

4. If you spend 15 minutes a day on your arithmetic lesson, how many minutes will you spend in a school week of 5 days?

5. Find the cost of 7 overcoats at $19 each.

6. Find the cost of 9 cows at $42 each.

7. Find the cost of 8 acres of land at $225 an acre.

8. If one carriage is worth $175, what will 6 carriages be worth?

9. If 7 men can do a piece of work in 42 days, how long will it take one man to do it?

10. There are 24 hours in one day. How many hours are there in 9 days?

11. Find the weight of 6 bu. of corn, if one bushel of corn weighs 56 pounds.

12. If there are 60 pounds of wheat in one bushel, what will 5 bushels weigh?

13. Find the cost of 8 lb. of coffee at 28¢ a pound.

14. What is the cost of 6 building lots, if each lot costs $465?

15. How much will 9 acres of land cost at $96 an acre?

16. How many men are there in an army of 8 regiments, if there are 980 men in each regiment?

17. A has 378 acres of land, and B has 7 times as many. How many acres has B?

18. There are 365 days in a year. How many days are there in 4 years?

19. If a steamboat burns 344 tons of coal a day, how much coal will it burn in 5 days?

20. Mr. Brown bought 6 city lots at $975 each. What was the cost?
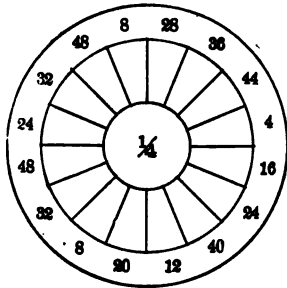
Find ¼ of each of the numbers in the ring.
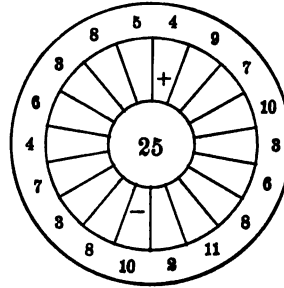
To 25 add each of the numbers in the ring. From 25 subtract each of the numbers in the ring.

1. Lucy's mother gave her 50 cents, and she spent 30 cents. How much money had she left?

2. How many feet in 18 inches?

3. Draw an oblong which is 16 inches round it.

4. If ribbon costs 2 cents a foot, how many yards can you buy for 18 cents?

5. Nine pints are how much more than a gallon?

6. How many quarts in 18 pints?

7. At 3¢ a pint, what will 6 qt. of milk cost?

8. If 1 lb. of sugar costs 8¢, what will ½ lb. cost?

9. If 1 lb. of sugar costs 8¢, what will 1½ pounds cost?

10. Seventeen is how many less than 1½ doz.?

11. If ½ peck of plums costs 20¢, what will 1 peck cost?

12. What will 2 bu. of grass-seed cost at $2 a peck?

13. How many sides have 7 triangles?

14. How many faces have 7 cubes?

15. Ned has 6 qt. of strawberries. How many pint baskets can he fill?

16. George had 34 marbles, but lost half a dozen. How many has he left?

17. Our front hall is 40 in. wide. How much wider is that than carpet 1 yard wide?

(See page 102.)

1. Divide by 3:

99   123   210   186   279   240   330   432   219   162

2. Divide by 4:

364   88   320   168   256   164   424   564   612   768

3. Divide by 5:

175   95   215   370   325   400   365   435   625   495

4. Divide by 6:

600   126   204   300   486   186   372   642   534   324

5. Divide by 7:

700   637   560   854   77   784   427   511   357   378

6. Divide by 8:

800   648   744   896   400   816   464   568   376   296

7. Divide by 9:

648   450   540   837   999   918   729   639   567   486

8. Divide by 2:

460   264   374   444   212   678   476   564   712   842

9. Divide by 8:

472   544   312   520   696   888   552   632   440   376

10. Divide by 9:

216   414   738   639   549   693   756   567   657   855

11. Divide by 7:

294   245   588   441   672   406   546   658   749   462

12. Divide by 6:

192   456   378   984   714   510   426   546   612   342

13. Divide by 8:

536   624   736   456   864   912   560   632   432   352

14. Divide by 9:

621   747   846   963   585   495   675   765   873   927

15. Divide by 5:

985   865   745   625   535   885   465   545   630   715

1. How many yards are there in 792 feet?

2. How many pecks are there in 968 quarts?

3. How many weeks are there in 364 days?

4. How many gallons are there in 948 quarts?

5. A man gave $714 to his workmen, giving $6 to each. How many workmen were there?

6. I sold 7 horses for $854. How much did I receive for each horse?

7. A man earned $336 in 8 months. How much is that a month?

8. If 1 ton of coal costs $6, how many tons will $768 buy?

9. How many yards are there in 897 feet?

10. How many gallons are there in 972 quarts?

11. How many weeks are there in 987 days?

12. How many pecks are there in 952 quarts?

13. A man divided $816 equally among his wife, his 2 sons, and his 3 daughters. What was the share of each?

14. A farmer had 396 sheep in 3 pastures, each having the same number. How many were there in each pasture?

15. A man bought a horse for $120. How many $5 bills will it take to pay for the horse?

16. A man divided 168 pears equally among 4 boys. How many pears did each boy receive?

17. If 6 marbles are sold for a cent, how much will a boy have to pay for 132 marbles?

18. If it takes 132 days for one man to do a piece of work, how many days will it take 4 men?

19. At $7 a ton how many tons of coal can be bought for $756?

20. At $6 a cord how many cords of wood can be bought for $432?

1. Fill the blanks:

$$1 = \tfrac{}{} \qquad 1 = \tfrac{}{} \qquad 1 = \tfrac{}{} \qquad 2 = \tfrac{}{} \qquad 2 = \tfrac{}{}$$
$$1 = \tfrac{}{} \qquad 1 = \tfrac{}{} \qquad 1 = \tfrac{}{} \qquad 2 = \tfrac{}{} \qquad 2 = \tfrac{}{}$$
$$1 = \tfrac{}{} \qquad 1 = \tfrac{}{} \qquad 1 = \tfrac{}{} \qquad 2 = \tfrac{}{} \qquad 2 = \tfrac{}{}$$

2. An orchard has 56 trees in 7 rows. How many trees are in a row?

3. How many hats, at $6 each, can be bought for $54?

4. How many bushels are there in 56 pecks?

5. How many pecks in 72 quarts?

6. How many sheep, at $9 a head, can be bought for $63.

7. If a man walks 3 miles an hour, how many hours will it take him to walk 33 miles?

8. A schoolroom contains 35 desks; there are 5 rows. How many desks are there in each row?

9. A man was 18 half-days in building a wall. How many days did he work?

10. A boy gave ¼ of an orange to his sister, ¼ to his brother, ¼ to his playmate, and ate ¼. How much of the orange did he have left?

11. Charlie had ⅔ of an apple, and gave ⅓ to his sister. How many thirds had he left?

12. How many gallons in 36 quarts? 48 quarts?

13. A boy found 21 eggs in the barn. He put them in his hat to carry into the house, but fell and broke some. If he had 1½ doz. when he reached the house, how many did he break?

14. There are 13 men in one car and 5 in another. How many men are in both cars? How many more men in one car than in the other?

15. If seven men can do a piece of work in 9 days, how many men will it take to do the same work in 1 day?
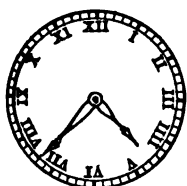
NOTE. — There should be a clock-dial in the room. Each child should be allowed to use it in connection with the problems of this lesson, in order that he may "learn by doing."

1. Of what is this a picture? How many pointers are there?

2. Are they of the same length?

3. What does the long pointer tell? The long pointer tells the minutes.

4. What does the short pointer tell? The short pointer tells the hours.

5. Have you ever noticed where the long pointer was when the clock struck the hour? Where was it?

6. Put both pointers at XII. It is now 12 o'clock.

7. Let the long pointer remain there. Put the short pointer at I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII. Tell what hour it is with the long pointer at XII and the short one at each of these figures.

8. Draw a clock-face that shows 9 o'clock. 10 o'clock.

9. How long does it take the long pointer to move round the face?

10. How far does the short pointer move, while the long pointer is going round once?

11. Where is the long pointer when it is half way round?

12. Show on the clock-face half past 12. Where is the short pointer?

13. Show on the clock-face half past 10. Half past 3.

14. Show on the clock-face half past 9. Half past 1.

15. Show on the clock-face half past 6. Half past 11.

16. Show on the clock-face the time when school begins in the morning and afternoon.

17. Show when the school closes in the morning and afternoon.

18. Turn the pointers on the dial so as to indicate each hour and each half hour of the day.

1. Take the clock face. Start with both pointers at XII. Show me every hour and every half hour in the day.

2. Where is the long pointer when it has gone ¼ of the way around? Remember, when the long pointer is at III we call it "quarter past."

3. If the long pointer was at III, and the short one a quarter of the distance between I and III, what time would it be?

4. Show quarter past II.

5. Show quarter past IX.

6. Show quarter past XII.

7. Practice until you can place the pointers so as to show quarter past any hour.

8. Where is the long pointer when it has gone ¾ of the way around? Remember, when the long pointer is at IX we call it "quarter of."

9. Show quarter of IX. The time for you to start to school.

10. Show quarter past I. Time to start in the afternoon.

11. Show quarter of VII.

12. Show quarter of IV.

13. Show quarter of XII.

14. Show quarter of any hour asked.

15. Do you see the little marks between XII and I? Are there marks between all the numbers?

16. Into how many parts is each space divided?

17. Each division marks 1 minute. How many minutes then between XII and I?

18. Start with both pointers at XII. Move the long pointer to I. Over how many minutes have you moved it? How many minutes past XII is it then?

19. Show 10 minutes past XII.

20. Show 5 minutes past XII.

21. Show 15 minutes past XII.

Copy and learn:

   60 seconds make 1 minute.
   60 minutes make 1 hour.
   24 hours make 1 day.
    7 days make 1 week.
   52 weeks make 1 year.
   12 months make 1 year.

1. If you are asleep $\frac{1}{3}$ of the day, how many hours are you asleep?

2. How many hours in the forenoon are you at school?

3. How many hours are you in school in a day?

4. Copy and learn:

   "Thirty days hath September,
    April, June, and November."

February has 28 days, and in leap year 29 days. The other months have 31 days each.

5. Write the names of the months in order, and after each write the number of days in it.

6. What month is it now? How many days has it?

7. How many weeks are there in 30 working days?

8. How many days from the 1st of June to the 9th of July?

9. How many days from the 1st of September to the 25th of October?

10. How many weeks and days are there in the month of December?

11. How many hours are there in 5 days?

12. How many minutes are there in $\frac{1}{2}$ of an hour?

13. 15 minutes is what part of an hour?

14. 12 hours is what part of a day?

15. How many hours is it from 11 o'clock in the forenoon to 3 o'clock in the afternoon?

16. The first day of August was Thursday. What day of the month was the next Thursday?

1. A. M. means "before noon" or in the forenoon.
2. P. M. means "after noon" or in the afternoon.
3. We write 8 o'clock in the morning thus: 8 A. M.
4. We write 8 o'clock in the evening thus: 8 P. M.
5. Write 11 o'clock in the forenoon.
6. Write 4 o'clock in the afternoon.
7. By 9.20 A. M. we mean 20 minutes past 9 in the morning.
8. 6.30 P. M. means 30 minutes past 6 in the afternoon.
9. How many hours are there from 9.45 A. M. to 12.45 P. M.?
10. How many hours are there from 11.30 A. M. to 1 P. M.?
11. How many hours are there from 8.15 A. M. to 10.45 A. M.?
12. A train moves 30 miles an hour. How far will it move from 10.30 A. M. to 12 M.?
13. The first day of August was Wednesday; what day of the week was the 9th day of August?
14. The first Monday in September is Sept. 2. What day of the month will the following Saturday be?
15. I started on a trip at 9.40 A. M. If the trip took 8 hours, at what time did I reach my destination?
16. How many hours from noon till midnight?
17. How many minutes in $1\frac{1}{4}$ hours?
18. How many days in 3 wk. 4 d.?
19. How many months in 2 yr. 4 mo.?
20. How many hours from 9.30 A. M. to 2 P. M.?
21. How many days from July 28 to Aug. 5?
22. How many days are there between Thursday of this week and Wednesday of next week?
23. The first day of September is Sunday. How many Sundays will there be during the month?

1. Frank saw 8 cows in one pasture and 12 in another. How many more cows did he see in one pasture than in the other? How many cows did he see in both pastures?

2. A butcher bought calves at $7 a head. How many did he buy for $28?

3. At $7 a barrel, what are 8 bbl. of flour worth?

4. How many days are there in 9 weeks?

5. How many days are there from Sept. 15 to Oct. 10?

6. How much will $\frac{1}{2}$ pound of candy cost, at 2¢ an ounce?

7. If there are 4 sq. in. in the face of a cube, how many sq. in. are there in all the faces?

8. At 63¢ a yard, what is $\frac{1}{3}$ of a yard of cloth worth?

9. How many pecks are there in 56 quarts?

10. Give the abbreviations for the following words: foot, inch, ounce, barrel, year.

11. $\frac{1}{6}$ of a dozen eggs is how many eggs?

12. 9 oysters have how many shells?

13. How many pages in a book of 12 leaves?

14. When $\frac{1}{2}$ a pound of sugar costs 3 cents, what will 1 pound cost? What will $3\frac{1}{3}$ pounds cost?

15. When oranges are 12 cents a half dozen, how many oranges can you buy for 24 cents?

16. Count by 8's to 96. Count by 6's to 72.

17. How many ninths in $\frac{1}{3}$?

18. How many minutes in $\frac{1}{2}$ an hour?

19. Which is the larger, $\frac{1}{5}$ or $\frac{1}{10}$ of an orange?

20. Frank has $18. His father gave him $\frac{1}{3}$ of it. His mother gave him $\frac{1}{9}$ of it. His grandmother gave him $\frac{1}{2}$ of it. Frank earned the rest. How much did he earn? and how much did each give him?

21. Bessie is 6 years old. How old will she be in 12 years?

Undoubtedly the pupils are familiar with the different coins, yet to make this lesson more practical it is a good plan to have the different coins on exhibition.

1. How many half dollars make a dollar?
2. How many quarter dollars make a dollar?
3. How many quarter dollars make a half dollar?
4. How many dimes make a dollar?
5. How many dimes make a half dollar?
6. How many 5-cent pieces make a half dollar?
7. How many 5-cent pieces make a quarter dollar?
8. Two dimes and a 5-cent piece make ——— of a dollar.
9. What 3 coins make 40 cents?
10. A quarter dollar, 2 dimes, and three cents make ——— cents.
11. A half dollar, a quarter dollar, and a dime are ——— cents.
12. A dime, a 5-cent piece, and 2 cents are ——— cents.
13. What coin must you put with a dime and a 5-cent piece to make a quarter?
14. I have 3 dimes and a 5-cent piece. How much more do I need in order to have a half dollar?
15. How many cents are there in a dollar?
16. How many cents are there in a half dollar?
17. How many cents are there in a half dollar and a quarter dollar?
18. What pieces of money should I use to pay for articles costing 65 cents?
19. What pieces of money would pay for articles costing 80 cents?
20. How many 5-cent pieces must be added to 3 quarters to make 85 cents?

When dollars and cents are written together, the cents are separated from the dollars by a point. Thus: Three dollars and sixty-five cents may be written $3.65; 42 cents may be written $.42; three cents may be written $.03.

Write the following:

1. One dollar and forty-two cents.
2. Six dollars and seventy-five cents.
3. Four dollars and one cent.
4. Sixty dollars and fifty cents.
5. Eighty-three dollars and forty-nine cents.
6. Seven dollars and three cents.
7. Eleven dollars and twenty-two cents.
8. Twenty-four dollars and twenty cents.
9. Sixteen dollars and five cents.

Read the following:

10. $4.66. $5.55. $ 2.84. $3.61. $11.26 $21.48.
11. $6.05. $7.02. $16.71. $4.88. $ 4.17 $ 5.23.

12. Write the sums of money in Example 11, one under the other, and add them. Be sure that in writing them you keep the points under each other.

Add:

13.	**14.**	**15.**	**16.**	**17.**
$1.50	$2.78	$3.74	$4.62	$9.99
2.65	4.63	5.62	7.28	7.43
5.85	9.18	7.91	8.36	6.12

Subtract:

18.	**19.**	**20.**	**21.**	**22.**
$9.64	$6.41	$1.26	$8.51	$5.25
7.32	3.38	0.45	4.37	4.75

Subtract:

23.	**24.**	**25.**	**26.**	**27.**
$7.19	$5.72	$7.11	$6.49	$8.42
4.76	2.95	4.08	3.58	4.68

1. The three sides of a triangle are 6 inches, 8 inches, and 10 inches. · What is the distance round the triangle?

2. How many inches in a yard?

3. Clinton has 7 chickens, George has nine, and Henry has 8. How many have they all together?

4. There were 17 books on a shelf. If you should take down 11, how many books would be left on the shelf?

5. What will 10 cords of wood cost at $6 a cord?

6. How many quarts in 7 pecks?

7. How many inches in 8 feet?

8. 17 boys are 9 more than how many boys?

9. A girl who had 21 oranges gave away 8 of them. How many had she left?

10. If 7 oranges cost 21 cents, how much will 1 cost? How much will 9 cost?

11. What do 7 pairs of shoes cost at $6 a pair?

12. What do 8 pairs of boots cost at $5 a pair?

13. What will 7 pencils cost at 5 cents each?

14. If you have $5, and earn $7 more at one time and $6 more at another, how much will you have?

15. There were 16 girls in a party after 9 had gone home. How many were there at first?

16. How many sheep at $6 a head can be bought for $54?

17. Jane gave away $\frac{1}{5}$ of all her jackstones. How many jackstones did she give away, if she had 25 at first?

18. A man had $28, and spent $\frac{1}{7}$ of it. How many dollars did he spend?

19. A lady bought 12 yd. of muslin at 8¢ a yard. How much did it cost her?

20. A hardware dealer paid $60 for 12 kegs of nails. What was the price of 1 keg?

1. Add: 323, 331, 23, 332, 213, 32, 333.

2. $21 is $\frac{1}{2}$ of how many dollars?

3. What will 6 horses cost, at $120 each?

4. How many feet in 4 rods, if there are $16\frac{1}{2}$ feet in 1 rod?

5. Divide $\frac{1}{2}$ of 72 marbles equally among 6 boys. How many marbles will you give to each boy?

6. A farmer had 230 sheep, and bought 132 more. How many had he then? He then sold $\frac{1}{2}$ of all he had. How many had he left?

7. What is the average price, if 3 stoves cost $81?

8. How many boxes will hold 117 lb. of candy, if 3 pounds are put in each box?

9. 5 time 15 cents are how many times 3 cents?

10. What number multiplied by 5 gives 165?

11. A man's salary is $850 a year, his expenses are $430 a year. How much does he save in a year?

12. Thomas has 54 marbles, Richard has 48, and Henry has as many as both the others. How many has Henry? How many have they all?

13. What 3 equal numbers make 75?

14. What will 9 yd. of cloth cost, at 75¢ a yard?

15. What will 7 lb. of butter cost, at 23¢ a pound?

16. Add: 543, 251, 705, 525, 353, 45, 544.

17. What will 8 stoves cost, at $35 each?

18. How many pencils at 4¢ each can you buy for 72 cents?

19. I had 2 doz. eggs, sold 16, and broke 4. How many had I left?

20. If 4 knives cost 96 cents, what will 1 knife cost? What will 9 cost?

21. What will 8 lb. of tea cost, at 35¢ a pound?

22. How many bushels in 112 pecks?

23. How many gallons in 90 pints?

1. How many days in the Spring and Summer months?

2. A man bought 8 horses for $76 each. How much did he pay for them?

3. At $70 each, what will 6 wagons cost?

4. At 75 cents a yard, what costs 9 yards of cloth?

5. How many rods of fence will enclose a field 175 rods long and 167 rods wide?

6. A grocer buys butter at 18 cents a pound, and sells it at 25 cents. What does he gain on a pound? On 4 pounds?

7. A boy who had $17, earned $28 more, and then paid $18 for a suit of clothes. How much had he left?

8. How many inches in 2 yards and 2 feet?

9. What cost 7 bushels of potatoes at 75 cents a bushel, and 9 pounds of butter at 17 cents a pound?

10. If you had 60 marbles, and gave ⅓ of them to Harry, and ¼ of them to George, how many would you have left?

11. How many hours in 9 weeks?

12. I asked Robert how many marbles he had. He replied, "If I had 18 more marbles I should have 45." How many had he?

13. How many eggs in 8 baskets, if there are 6 dozen in each?

14. What cost 8 acres of land at $75 an acre?

15. A boy had 55 cents, which was 17 cents more than his sister had. How many cents had both?

16. Add: $9.76, $8.95, $7.45, $9.17, $7.58, $8.67, $2.83, $8.47, $8.66.

17. Divide: 87 by 7.   99 by 8.   76 by 4.   63 by 3.
                49 by 4.   46 by 3.   81 by 6.   94 by 7.
                85 by 6.   75 by 5.   64 by 5.   99 by 8.

18. Mr. W. started to walk 56 miles. He walked 24 miles the first day; how many miles were left to walk on the second day?

1. What is the sum of $9, $7, and $4.

2. If you pay 10 cents for car-fare, 25 cents for lunch, and 5 cents for fruit, how many cents will you spend?

3. If a slate costs 12 cents, and a reader 26 cents, how much more will one cost than the other?

4. John had 15 cents, and his father gave him 10 more; he then spent 7 cents for candy. How many cents had he left?

Make examples for each of the following:

5. $14 - 6 + 3 = ?$	**6.** $16 - 9 + 4 = ?$
7. $17 - 8 + 6 = ?$	**8.** $13 - 7 + 4 = ?$
9. $9 - 6 + 5 = ?$	**10.** $11 - 8 + 6 = ?$
11. $8 + 4 - 6 = ?$	**12.** $4 + 7 - 3 = ?$
13. $7 + 9 - 8 = ?$	**14.** $8 + 4 - 6 = ?$
15. $9 + 8 - 7 = ?$	**16.** $5 + 6 - 9 = ?$
17. $11 - 4 - 5 = ?$	**18.** $18 - 6 - 5 = ?$
19. $4 + 8 - 7 = ?$	**20.** $6 + 7 - 9 = ?$

21. To 5 add 6, subtract 3, add 7, subtract 8, add 4, subtract 7, add 8, subtract 3; name the remainder.

22. From 15 take 6, add 7, take 5, add 5, take 6, add 4, take 9, add 10; name the sum.

23. To 14 add 5, take 7, add 4, take 3, add 8, take 5, add 6, take 4, add 9, take 6; name result.

24. How many are $13 - 7 + 3 - 4 + 10 - 8 + 5 - 7 + 6$?

25. $7 + 9 - 10 + 6 - 4 + 7 - 8 + 9 = ?$

26. $2 + 6 - 8 + 4 - 3 + 20 - 10 + 5 = ?$

27. $17 - 8 + 9 - 10 + 7 - 6 - 8 + 9 + 7 - 5 = ?$

28. How much will 8 muffs cost, at $12 each?

29. If I earn $12 in a month, and spend $8, how much can I save in a year?

30. If there are 12 girls in a class, and 2 times as many boys less 9, how many boys are there in the class? How many boys and girls are there?

Add:

1.	2.	3.	4.	5.	6.	7.
546	607	741	641	821	738	436
723	796	835	257	632	837	436
205	438	367	648	748	692	436
434	362	346	536	596	973	436

Subtract:

8.	9.	10.	11.	12.	13.	14.
769	835	257	632	436	963	641
607	697	163	496	295	778	392

Multiply:

15.	16.	17.	18.	19.	20.	21.	22.
78	97	67	89	68	48	84	94
6	5	8	4	9	7	8	9

Divide:

23.	24.	25.	26.	27.	28.
4)368	5)560	6)228	8)432	9)468	7)287

Multiply:

29.	30.	31.	32.	33.	34.	35.
32	76	21	78	96	40	65
3	4	5	6	7	8	9

Divide:

36.	37.	38.	39.	40.	41.
8)512	9)729	8)248	6)648	7)343	5)575

Multiply:

42.	43.	44.	45.	46.	47.	48.	49.
94	38	60	86	78	47	64	73
5	6	9	5	9	7	6	8

1. A woman bought groceries to the amount of $3.78. She gave a $5 bill in payment. How much change should she receive?

2. A farmer has 9 acres of potatoes, worth on the average $38 an acre. What is the total value of his potato crop?

3. How many square feet in the ceiling of a room 21 ft. long, and 8 ft. wide?

4. How many feet in the perimeter of this ceiling?

5. A western farmer raised 758 bu. of rye, 273 bu. of oats, 678 bu. of corn, 872 bu. of wheat. How many bushels of grain did he raise?

6. In a school building there are 115 pupils in the first grade, 105 in the second, 95 in the third, 98 in the fourth, 90 in the fifth, 85 in the sixth, 80 in the seventh, and 75 in the eighth. How many pupils are there in the whole school?

7. Mr. Adams paid $576 for flour, $465 for sugar, and $326 for vegetables. How much did he receive for all, if he sold them at a gain of $286?

8. If a steamer sails 236 miles in one day, how far will she sail in 4 days?

9. A dry goods merchant, in purchasing his stock, paid $725 for silk goods, $850 for woolen goods, $415 for cotton goods, and $964 for other goods. What did all his goods cost?

10. There are 378 gal. in 6 hogsheads. How many gallons are there in one hogshead?

11. A laborer saves $9 a month. How many months will it take him to save $567?

12. A man had $246 and spent $184. What is the difference between what he spent and what he had?

13. If $918 be equally divided among 9 men, how many dollars will each receive?

1. 25 is how much more than 16 ? 21 ? 14 ?

2. Find the cost of ¾ of a yard of 8-cent muslin.

3. In 54 there are how many 9's ?

4. How many ounces are there in ¾ of 16 ounces ?

5. When butter is 24 cents a pound, what part of a pound can be bought for 6 cents ?

6. How much does half a pound of candy cost, if a quarter of a pound costs 5 cents ?

7. If ½ a pound of raisins costs 8 cents, what is the price of a pound ?

8. Mary buys a doll for 23 cents, and has 8 cents left. How much money did she have at first ?

9. If I can buy 2 marbles for a cent, how much must I pay for 12 marbles ?

10. Forty-eight quarts are how many gallons ?

11. If 2 oranges cost 6 cents, what must I pay for 10. oranges ?

12. George has 10 marbles; Willie has 5 more than George. How many marbles have both boys ?

13. If 3 peaches cost 9 cents, what will 1 peach cost ? How many peaches can you buy for 18 cents ?

14. If you have in your bank a quarter, a dime, a half-dime, a 3-cent piece, a 2-cent piece, and a cent, how much money have you ?

15. At $5 a ton, what will your father have to pay for 6 tons of coal ?

16. How many oranges are there in a box containing 4 dozen ?

17. A farmer has 3 horses, 25 cows, and 12 pigs. How many animals does he own ?

18. If 9 fire-crackers are sold for a cent, how many can a boy get for a dime ?

19. At $9 a dozen, what will 7 doz. caps cost ?
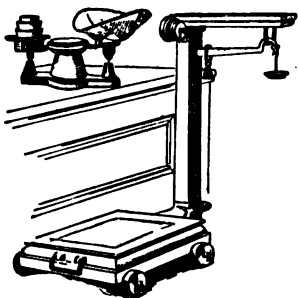
NOTE. — It will not be time wasted to allow each child to use the scales, and find out for himself how many ounces there are in a pound.

1. What are the things in the picture called?

2. For what are they used?

3. Have you scales in your room?

4. Weigh a pound of sawdust.

5. Find out how many ounces there are in it.

6. Copy and fill blank:

—— ounces make 1 pound.

Oz. stands for ounce or ounces; lb. stands for pound or pounds.

7. How many ounces in $\frac{1}{2}$ of a pound?

8. How many ounces in $\frac{1}{4}$ of a pound?

9. 2 oz. is what part of a pound?

10. Guess at the weight of your arithmetic; weigh it.

11. Guess at the weight of different objects in the room, then weigh them to find your mistake.

12. Copy the following, and fill it out:

NAME.	GUESS.	WEIGHT.	MISTAKE.

NOTE. — The teacher should have a large variety of objects, such as bags of peas, corn, meal, sugar, sand, sawdust, etc.

The pupils should be allowed to spend several hours in estimating weight, and then testing their estimate.

Connect this with "store-keeping."

1. Write all the numbers below 10 that you can evenly divide by 2.

2. Copy and learn: All numbers that can be evenly divided by 2 are called even numbers.

3. Write all the even numbers between 1 and 17.

4. Write 4 numbers on your slate that can *not* be evenly divided by 2.

5. Copy and learn: All numbers that can *not* be evenly divided by 2 are called odd numbers.

6. Write all the odd numbers from 1 to 17.

7. Commence with 2, and count by 2's to 16.

8. Commence with 3, and count by 2's to 17.

9. Commence with 20, and write 10 even numbers.

10. Commence with 21, and write 10 odd numbers.

11. Write all the numbers between 30 and 40 that can be evenly divided by 2.

12. Write all the numbers between 40 and 50 that can not be exactly divided by 2.

13. Add the odd numbers between 50 and 70.

14. Add the even numbers between 61 and 81.

15. Is 16 odd or even? Why?

16. Is 27 odd or even? Why?

17. Tell which of these numbers are odd and which are even: —

34; 19; 23; 44; 98; 52; 79; 43; 64; 99.

18. Is 25 odd or even? What must you put with it to make it even?

19. Is 50 odd or even? What must you take from it to make it odd?

20. Write the first odd number above 25.

21. Write the first even number below 30.

22. Count backward by 2's from 50.

23. Count backward by 2's from 49.

24. Why is 19 an odd number?

1. If ½ a pound of candy costs 10 cents, how much must I pay for 2 pounds?

2. I divided 4 apples into fourths. How many pieces did I have?

3. A boy having 25 cents, bought 1 quart of cherries for 8 cents, 1 orange for 6 cents, and some candy for 7 cents. How many cents had he left?

4. If 1 qt. of kerosene oil costs 4 cents, how much will 1 gal. cost?

5. John had 40 cents, Henry 30 cents, and William 20 cents. How many more cents did the boys need to make $1?

6. If ½ a pound of tea costs 40 cents, what does 1 ounce cost? What will be the price of 5 ounces?

7. If candy is 20 cents a pound, what part of a pound can be bought for 5 cents?

8. If ¼ of a pound of candy costs 5 cents, what will 1 pound cost?

9. A farmer had 5 tons of hay, and sold ⅕ of it to one man. How many tons did he have left? He then sold 1½ tons to another man. How many tons had he left?

10. 3 is ⅓ of what number? 6 is ⅙ of what number?

11. 4 is ¼ of what number? 8 is ⅓ of what number?

12. 7 is ⅕ of what number? 9 is ¼ of what number?

13. 5 is ⅓ of what number? 7 is ⅙ of what number?

14. 4 is ⅙ of what number? 8 is ¼ of what number?

15. 9 is ⅛ of what number?

16. 10 is 5 times what number?

17. If 6 is ⅔ of a number, what is ⅓ of it? What is the whole number?

18. How much cloth, at $6 a yard, can you buy for $21?

19. If ⅓ of a yard of cloth cost $3, what will 1 yard cost?

NOTE. — To quicken the thought power we have found it useful frequently to give only statements of certain problems, leaving the pupils to determine first, what can be found, and then how to find it. These lessons will be marked simply statements. Have the pupils read the statements, and then answer some original question which they have asked themselves. Do not ask the questions for them.

1. An oblong is 4 inches long and 2 inches wide.

2. George had a string 15 inches long, and cut it so as to make 5 equal pieces.

3. A boy had 2 dimes. He bought 5 oranges at 3 cents each.

4. A boy had a quarter. He bought some peaches. 3 peaches cost 5 cents.

5. Henry walked 8 miles in 2 hours.

6. Mary has 18 roses. 10 of the roses are white.

7. A farmer sold a calf for $9, and 2 sheep for $4 each.

8. Maud is 8 years old, and her brother is 4 yr. old.

9. I visited my aunt from Tuesday morning till Saturday night.

10. A square half a foot long.

11. My mother sent me to the store for 5 pt. of milk.

12. Apples cost 2 cents each. I have 12 cents.

13. Charles had a dozen oranges, and gave his sister ¼ of them.

14. A quart of milk costs 6 cents. I bought 3 pints.

15. A yard of ribbon costs 12 cents. Mary bought one half a yard.

16. Grace and Mary picked 18 qt. of berries. Grace picked 10 quarts.

17. A man rode 20 miles in a train, and 10 miles in a team.

18. A lady had half a dollar, and spent 38 cents.

19. Peaches cost 12 cents a quart. I bought half a peck.

NOTE. — Each pupil should be supplied with a quantity of inch cubes.

1. Build a pile 4 in. long, 3 in. wide, and 2 in. high. How many cubes are there in the top layer? How many layers are there?

2. If there are 12 cubes in 1 layer, and there are two layers, how many cubes are there in the pile?

3. Multiplying the length and breadth of a prism together gives the number of cubes in ———— layer.

4. Multiplying the number of cubes in one layer by the number of layers, gives the number of cubes in the prism.

Find the cubic inches in the following solids by multiplying the three dimensions together.

5. A prism 4 in. × 4 in. × 2 in.
6. A prism 4 in. × 3 in. × 2 in.
7. A cube 4 in. × 4 in. × 4 in.
8. A prism 5 in. by 4 in. by 3 in.
9. A prism 5 in. by 5 in. by 2 in.
10. A prism 5 in. by 5 in. by 4 in.
11. A prism 6 in. by 4 in. by 3 in.
12. A prism 6 in. by 5 in. by 4 in.
13. A cube 5 in. by 5 in. by 5 in.
14. A cube 6 in. by 6 in. by 6 in.
15. A prism 8 in. by 6 in. by 4 in.
16. A prism 8 in. by 7 in. by 5 in.
17. A prism 9 in. by 8 in. by 6 in.
18. A cube 8 in. by 8 in. by 8 in.
19. A cube 9 in. by 9 in. by 9 in.
20. A prism 5 in. by 5 in. by 3 in.
21. A prism 6 in. by 6 in. by 5 in.
22. A prism 7 in. by 6 in. by 5 in.
23. A cube 7 in. by 7 in. by 7 in.

1. There are 54 seats in a schoolroom, in 6 rows. How many seats in a row?

2. If there are 18 quarts of pickles in 6 jars, how many are there in 9 jars?

3. What is ⅓ of 36? ¼ of 28? ⅓ of 18? ⅛ of 40? ⅐ of 49?

4. How many minutes in ⅓ of an hour?

5. When 1 comb costs 7 cents, 6 combs will cost —— cents?

6. When 6 spools of silk cost 24 cents, 8 spools will cost —— cents?

7. Add ⅓ of 18 and ⅛ of 24.

8. Take ⅓ of 42 from ⅓ of 54.

9. How many angles and sides have 6 triangles?

10. How many angles and sides have 4 rectangles?

11. How many angles and sides have 3 pentagons?

12. 4 qt. of oil cost 28 cents. What will 6 qt. cost?

13. When Lucy gets 2 more 5-cent pieces she will have 40 cents. How much money has she now?

14. What 3 coins make 25 cents?

Play you are a storekeeper, and make change for the following:

15. 17 cents from a quarter-dollar.

16. 11 cents from a dime and a nickel.

17. 37 cents from a half-dollar.

18. 15 cents from a quarter-dollar.

19. 18 cents from a half-dollar.

20. 25 cents from a dollar.

21. What numbers between 40 and 50 are divisible by 6?

22. Draw a rectangle 9 in. long and 8 in. wide.

23. Draw another rectangle having the same area, but 12 in. long.

24. How many quarter-dollars are there in $5?

1. A lady paid $6.75 for a hat, $8.50 for a cloak, and $9.75 for a dress. What was the entire cost?

2. Nellie has $5.68, and Florence has $3.94 more than Nellie. How much has Florence? How much have both?

3. Sarah had 3 dimes and six cents. Her brother Robert had a quarter, a dime, and eight cents. How much had they together?

4. A girl paid $1.25 for a pair of gloves; $.85 for ribbon; $.45 for some handkerchiefs; $3.75 for shoes and $.18 for thread. What was the cost of all?

5. A boy had $1.87 left after spending $1.25. How much money had he at first?

6. A farmer received $9.50 for poultry; $13 for a calf; $6.75 for eggs and $8.56 for butter. What did he receive for all?

7. A rectangular field is 75 rd. long and 56 rd. wide. Find its perimeter.

8. John has $223, and Samuel has $76 more than John. How many dollars has Samuel?

9. Peter has $143 more than Samuel. How many dollars has Peter?

10. How many dollars have John, Samuel and Peter together?

11. A merchant spent the following sums of money: $425; $367; $584; $797. How much did he spend altogether?

12. A merchant bought some goods for $786 and sold them at a gain of $178. For what sum did he sell them?

13. Find the weight of 6 bales of cotton, weighing respectively, 524 lb., 489 lb., 516 lb., 495 lb., 538 lb., and 484 lb.

1. A farmer who raised 767 bu. of wheat sold all but 188 bu. How many bushels did he sell?

2. Charles and Henry together have 574 marbles. If Charles has 296, how many has Henry?

3. Mary had $9.75. After she had paid $6.88 for a silk waist, how much had she left?

4. George started on a journey of 342 miles. After he had traveled 176 miles, how much farther did he have to travel to finish his journey?

5. I loaned a man $825. How much does he owe me after paying me $678?

6. A man had $536 in the bank and took out $379. How many dollars had he then left in the bank?

7. I offered to sell my horse for $212, but sold it for $37 less than I offered. For how much did I sell it?

8. A man's income is $326 a month and his expenses are $278. How much can he save each month?

9. A father gave his son $826 and his daughter $524. How much more did he give his son than his daughter?

10. A man paid $187 on a debt of $460. How much of the debt does he still owe?

11. A boy has $22. How much more money must he earn to have enough to buy a bicycle for $50?

12. A farmer bought a wagon for $125 and sold it for $98. How much did he lose?

13. A man bought a horse for $168 and sold it for $205. How much did he gain?

14. A man, who owned 340 sheep, sold 189 of them. How many sheep had he left?

15. A has $250, B has $79 less than A, and C has $57 less than B. How much money has C?

16. A farmer raised 184 bu. of potatoes. How many bushels will he have after selling 97 bushels?

1. How many days in 5 wk. 3 da.? In 6 wk. 5 da.?

2. How many quarts in 6 gal.? In 20 pt.?

3. Mark off a square yard on the board, and divide it into square feet.

4. How many feet in each side of your square? How many square feet in it?

5. How many cubic inches in a prism 4 in. by 3 in. by 2 in.?

6. Make a list of 10 things that have length and breadth. Guess at their length and breadth in feet and inches. Measure to correct your guess.

7. How many pounds in 16 ounces? In 32 ounces?

8. John, James, and Henry bought for 12 cents a pie, which they are to share equally. How much must each pay?

9. John had 5 cents and 6 cents. He spent 8 cents and earned 4 cents. How many cents had he then?

10. What is the cost of a pint of maple syrup if a quart costs 22 cents?

11. How much is hay a ton if $88 is paid for 8 tons?

12. $\frac{1}{8}$ of $64 is what a man paid for 2 puppies. How much did he pay for one?

13. If board is $3 a week, how much is it for 28 days?

14. If 1 bu. of chestnuts is worth $7, how much are 9 bu. worth?

15. Fred earns 6 cents an hour. How much will he earn in 8 hours?

16. One man had $63, another $\frac{1}{7}$ as much. How much had the second man?

17. One bag of barley weighs 84 pounds. How much will $\frac{1}{6}$ of a bag weigh?

18. At $7 a yard what will 5 yards of cloth cost? 8 yards?

1. How many bushels of potatoes can be raised on 8 acres of land, if each acre produces 147 bushels ?

· **2.** How many oranges in 7 boxes, if each box contains 276 oranges ?

3. If a clerk deposits $478 annually in a savings-bank, how much will he deposit in 6 years ?

4. Mr. Allen bought a piece of land of 5 acres at $189 an acre.   What was the cost of the land ?

5. If a locomotive-wheel revolves 467 times in going a mile, how many times will it revolve in going 4 miles ?

6. If a man saves $876 a year, what will he save in 3 years ?

7. If a train of cars runs 458 miles in a day, how many miles will it run in 4 days ?

8. What is the cost of 6 town lots at $878 a lot ?

9. Find the value of 7 acres of land at $185 an acre.

10. If 1 sq. m. contains 640 a., how many acres are there in a town containing 8 sq. miles ?

11. If 1 cord of wood contains 128 cu. ft., how many cubic feet are there in 9 cd. ?

12. If 1 gal. contains 231 cu. in., how many cubic inches are there in a vessel which contains 8 gal. ?

13. If a wagon wheel turns 475 times in going a mile, how many times will it turn in going 7 miles ?

14. What will 6 carriages cost at $165 each ?

15. A merchant cleared $978 a month for each of 7 months.   How much did he clear in all ?

16. What is the value of 8 horses at $189 each ?

17. A drover bought 9 horses at $125 each.   What did they all cost ?

18. A man bought 8 acres of land at $187 an acre. What did it cost ?

19. A conductor travels 275 miles a day.   How far will he travel in 7 days ?

1. Since there are seven days in a week how many weeks are there in 812 days?

2. A dealer paid $447 for some silk. If it cost $3 a yard, how many yards did he buy?

3. A man bought 8 acres of land for $912. What was the price an acre?

4. How many gallons are there in 532 quarts?

5. How many yards are there in 471 feet?

6. How many quarts are there in 986 pints?

7. An express train goes from Boston to New York, a distance of 234 miles, in 6 hours. How many miles does the train move an hour?

8. How many settees will be needed for 985 persons, if 5 are seated on each settee?

9. A man bought a piece of land for $824 and paid ⅛ of it every year. How many years did it take to pay for the land? How much did he pay each year?

10. Miss Jones teaches 9 months in the year at a salary of $585. How much does she receive a month?

11. How far must a man travel each day to go 927 miles in 9 days?

12. At $8 a thousand, how many thousands of bricks can be bought for $456?

13. If you should divide $456 equally among 6 children, what would each child receive?

14. When coal is selling at $7 a ton, how many tons can you buy for $847?

15. At $8 each how many sheep can be bought for $328?

16. If a boat can sail 8 miles an hour, how long will it take it to sail 816 miles?

17. A boy rides his bicycle at an average speed of seven miles an hour. How long will it take him to go from A to B, a distance of 364 miles?

1. Find the cost of 6 histories, at 7 dimes each.
2. How many coats, at $9 each, can you buy for $54?
3. Find the cost of 1 cow, if 6 cows cost $72.
4. Find the cost of 6 cloaks, at $8 each.
5. Find the cost of 1 acre, when 7 cost $56.
6. How many acres, at $7 an acre, can you buy for $63?
7. Find the cost of 9 oranges, at 3 cents each.
8. How many yards of ribbon, at 8⊄ a yard, can you buy for 64 cents?
9. What will 1 table cost, if 9 tables cost $99?
10. How many cords of wood can you get for $81, at $9 a cord?
11. What will ten bbl. of apples cost, at $3 a barrel?
12. What is the cost of 9 pairs of boots, at $6 a pair?
13. If 1 load of corn cost $7, how much will 10 loads cost?
14. $\frac{1}{2}$ of 24 plus $\frac{1}{3}$ of 24 plus $\frac{1}{4}$ of 24, are how many?
15. $\frac{1}{3}$ of 24 plus $\frac{1}{7}$ of 28 plus $\frac{1}{8}$ of 32, are how many?
16. $\frac{1}{3}$ of 12 is what number?
17. $\frac{1}{4}$ of 12 is what number?
18. What is the cost of 9 trunks, if 7 trunks cost $35?
19. What is the cost of 8 bureaus, when 6 bureaus cost $36?
20. If in each of 12 classes there are 12 pupils, how many pupils are there in all the classes?
21. Find the cost of 9 sets of silver spoons at $5 a set.
22. How many oranges, at 3⊄ each, can you buy for 36 cents?
23. Give the abbreviations of the words used in the table for Dry Measure.
24. Give the abbreviations of the words used in the table for Liquid Measure.

(See note, page 135.)

1. Henry had 12 cents and earned 10 cents more.

2. Grace was 11 years old 4 years ago.

3. Mabel will be 14 years old in 5 years.

4. Your arithmetic cost 15 cents and your pencil cost 4 cents.

5. There are 7 desks in the first row. There are 3 books on each desk.

6. Eggs cost 16 cents a dozen.

7. A merchant bought eggs at 12 cents a dozen and sold them for 17 cents a dozen.

8. A merchant bought eggs for 15 cents a dozen and sold them so as to gain 3 cents.

9. A little girl had a piece of ribbon a yard long. She cut it into three equal pieces.

10. Marbles cost " two for 5 cents." A boy bought 4 marbles.

11. Crackers cost 10 cents a pound. I bought 5 cents' worth.

12. My pencil is 6 inches long.

13. There are 5 rows of desks in the schoolroom and 8 desks in each row.

14. One-eighth of the desks are vacant to-day.

15. I bought to-day 2 loaves of bread at 5 cents a loaf and 6 oranges at 1 cent each.

16. At the same time I bought half a pound of butter at 24 cents a pound.

17. John bought 2 quarts of milk at 6 cents a quart and had 3 cents left.

18. Ella has 7 roses on her bush and Alice has 11 on hers.

19. 15 inches are ——— ft. and ——— inches.

20. An oblong is 8 in. long and 2 inches wide.

21. A cube measures 4 in. on a side.

1. How many quarts of beans can be put in a half-bushel and a peck measure?

2. A barrel of flour weighs 196 pounds. What is the weight of ½ a barrel?

3. A milkman sells 63 quarts of milk daily. How many does he sell in 1 week? In 4 weeks?

4. A rectangular box which measures 11 in. long, 3 in. wide, and 6 in. deep, contains how many cubic inches?

5. How much will 26 gal. 3 qt. of milk cost, at 4⊄ a quart?

6. How much must you pay for 2 doz. apples, at the rate of 10⊄ for ½ dozen?

7. How much money will you need to pay for a dozen oranges at 3⊄ each, and 1 doz. lemons at 2⊄ each?

8. A pile of wood 8 ft. long, 4 ft. wide, and 4 ft. high, is a cord. How many cubic feet does it contain?

9. How many cubic feet are there in a pile of wood 9 ft. long, 7 ft. wide, and 5 ft. high?

10. Does this pile of wood contain more than a cord?

11. What is the cost of 2½ bu. of wheat, at 80 cents a bushel?

12. One half of a number is 64. What is the number?

13. At 6⊄ a yard, what is the cost of 5 yards of tape?

14. What is the cost of 9 tons of coal, at $6 a ton?

15. If 9 horses cost $729, what is their average price?

16. If you buy 3 doz. pencils at 20⊄ a dozen, how much will they cost you? If you should sell them all for 80 cents, how much would you gain?

17. If I buy 12 barrels of flour at $6 a barrel, and sell it all for $98, how much shall I make?

18. A grocer paid $97 for sugar and $45 for molasses. How much more did he pay for sugar than for molasses? How much did they both cost?

1. What is the cost of 7 melons, at 9⊄ each?

2. At 12⊄ each, what will 9 melons cost?

3. Paid $9 for a lamp and $2 for a shade. What will 6 lamps and 6 shades cost?

4. At 10⊄ a ride, how many rides can a person have for 80 cents?

5. A man bought some butter for $9, some syrup for $6, and some flour for $7. How much did he give for them all?

6. Charles had 50 cents in the morning, but during the day he bought a pencil for 10 cents, and a rubber for 5 cents. How many cents had he at night?

7. Mary is 15 years old, and Jane is 9 years old. How many years will it be before Jane is 15 years old?

8. A boy had 10 marbles, and bought 15 more. He then lost 12; how many had he left?

9. A man bought a horse for $60, a harness for $20, and a wagon for $30. He sold them all for $100; how many dollars did he lose?

10. A man earned $16 in 4 days; how much did he earn in 1 day?

11. How much are 12 tons of coal worth, at $6 a ton?

12. In which month of the year, and on which day of the month, is Independence Day?

13. In which month of the year, and on which day of the month, is Christmas?

14. Find the exact number of days between Memorial Day and the Fourth of July.

15. How many cents are there in a dime? In a half-dime?

16. If an apple costs 2 cents, how many apples can you buy for 16 cents?

17. What will $4\frac{1}{2}$ lb. of crackers cost, at 8⊄ a pound?

1. A horse travels 9 miles an hour for 8 hours.

2. There are 10 words in the spelling-lesson. Alice missed ½ of them.

3. I paid $1.75 with a 2-dollar bill.

4. 8 ounces of cheese cost 9 cents.

5. Apples are 5 cents a quart. Mother bought a peck.

6. There are 42 desks in this room. There are 7 rows.

7. Hay costs $20 a ton. My horse eats 2½ tons.

8. 2 yards of cloth cost 40 cents.

9. George earns $8 a month.

10. I bought 5 gal. of oil, when it cost 3₵ a quart.

11. I sold my horse for $100. This was $25 less than it cost me.

12. I bought a horse for $150 and a carriage for $100.

13. 8 yards of cloth cost 96 cents.

14. ½ pound of butter costs 12 cents.

15. 2 pecks of potatoes cost 48 cents.

16. 2 bushels of wheat weigh 120 pounds.

17. 3 bushels of potatoes weigh 180 pounds.

18. A peck of corn weighs 14 pounds.

19. A man earns $60 a month for 10 months.

20. A farmer sold 10 pounds of butter at 25₵ a pound.

21. 2 quarts of apples were sold from a peck.

22. 1 quart of milk was sold from a can holding a gallon.

23. A man started on a journey of 12 miles. He walked 3 miles and rode the rest of the way.

24. There were 15 problems in the arithmetic lesson yesterday. You had 10 right.

25. I have in my pocket a silver dollar, 2 quarters, and 3 dimes.

1. How many quarts are there in 66 pecks?

2. A farmer raised 77 bu. of potatoes on each acre of a field containing 7 acres. How many bushels of potatoes did he raise?

3. How many bushels of potatoes did this farmer have left, after selling 368 bu.?

4. $728 were paid for 7 acres of land. How much did one acre cost?

5. If a man earns in 7 months respectively $67, $58, $54, $65, $57, $47, and $76, how much does he earn in all?

6. How many rods of fence will enclose a field 175 rd. long and 168 rd. wide?

7. What was the price of each wagon, if 7 wagons cost $385?

8. At $19 a ton, what will 8 tons of hay cost?

9. A lady earns $680 and pays out $510 for board and other expenses. How much of her salary remains?

10. A drover sold 756 head of cattle from a drove of 950. How many were left in the drove?

11. A boy had 85 cents which was 19 cents more than his sister had. How much had she? How much had both?

12. A dealer sold 112 tons of coal at one time, 136 tons at another, 284 tons at a third time and had 371 tons left. How many tons had he at first?

13. A dealer bought 347 barrels of apples and then sold 188 bbl. from the lot. How many more barrels did he buy than he sold?

14. Find the cost of 8 horses at $145 each.

15. If $384 are divided equally among 6 persons, how much will each receive?

16. A piece of land was bought for $635 and sold for $752. What was the gain?

1. How much longer is 19 ft. than a rod (16½ ft.)?

2. 19 is how much more than a dozen?

3. How many school days in 5 weeks?

4. How many gallons in 24 quarts? In 24 pints?

5. 20 ft. equals —— yd. —— ft.

6. 24 oz. equals —— lb. —— oz.

7. 14 mo. equals —— yr. —— mo.

8. 18 qt. equals —— gal. —— qt.

9. If you had ½ lb. of candy, and should give 8 oz. to your sister, how much would you have left?

10. Name all the numbers that will divide 12 evenly.

11. Draw a rectangle containing 24 square inches. How long and how wide have you made it?

12. What different length and width might it have?

13. Give a third length and breadth that it might have.

14. What part of a day is 12 hours? 8 hours? 6 hours? 24 hours?

15. How many hours from 1 A. M. to 5 P. M.?

16. What does A. M. stand for?

17. How many half-dimes in 30 cents?

18. 1 lb. of coffee costs 32 cents, what will 4 oz. cost?

19. What is the cost of 15 ft. of tape at 3⊄ a yard?

20. How many yards in 36 ft.?

21. Bessie bought 18 oranges at ½⊄ each. How much did she give for them?

22. How many more days in January than in February?

23. What 5 pieces of money make $1½?

24. Nine times 4 are how many times 6?

25. Put in the proper signs:

15	6 = 9.	4	3 = 12.	4	3 = 12.
4	6 = 10.	27	3 = 9.	18	3 = 6.
8	7 = 15.	64	8 = 8.	25	5 = 5.
15	9 = 6.	2	10 = 12.	16	7 = 9.

Add:

1.	2.	3.	4.	5.	6.
364	756	705	305	271	274
204	563	50	415	205	740
328	314	270	27	51	316
506	142	8	712	362	165
284	256	563	172	627	172
421	565	632	845	413	721
215	301	830	819	135	146

Add:

7.	8.	9.	10.	11.	12.
465	810	513	513	123	52
654	103	132	136	50	863
324	375	764	152	721	24
423	758	51	527	19	407
560	26	512	830	678	53
78	674	380	123	768	563

Subtract:

13.	14.	15.	16.	17.	18.
253	537	378	786	862	625
213	131	312	123	232	321

Subtract:

19.	20.	21.	22.	23.	24.
472	725	258	589	894	947
212	124	242	423	232	321

Subtract:

25.	26.	27.	28.	29.	30.
876	769	695	958	587	542
586	592	478	379	326	478

Multiply :

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
35	46	56	65	85	47	76	43	38	64
6	7	8	7	8	6	4	8	7	3

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
75	87	45	43	45	87	85	76	75	18
6	7	3	4	5	6	7	·8	5	6

Divide :

21.	22.	23.	24.	25.	26.
6)324	2)238	3)573	2)426	3)432	3)333

27.	28.	29.	30.	31.	32.
5)525	3)414	4)468	4)472	4)520	5)650

33.	34.	35.	36.	37.	38.
6)858	6)786	6)672	7)854	7)952	7)707

39.	40.	41.	42.	43.	44.
8)896	8)944	9)999	9)909	9)981	5)585

Multiply :

45.	46.	47.	48.	49.	50.	51.	52.	53.
673	512	718	641	896	689	711	413	258
4	6	9	5	3	3	9	7	7

54.	55.	56.	57.	58.	59.	60.	61.	62.
863	612	417	517	729	563	715	881	363
8	6	5	4	9	8	7	5	8

1. What part of a month is a week?
2. What part of a week is a day?
3. What part of a day is an hour?
4. What part of an hour is a minute?
5. What part of an hour is 30 minutes?
6. What part of an hour is 20 minutes?
7. What part of an hour is 15 minutes?
8. What part of an hour is 10 minutes?
9. What part of a year is a month?
10. What part of a year is 3 months?
11. What part of a year is 4 months?
12. What part of a year is 6 months?
13. How many seconds in $\frac{1}{2}$ a minute?
14. How many seconds in $\frac{1}{4}$ of a minute?
15. How many seconds in $\frac{1}{3}$ of a minute?
16. How many hours in $\frac{1}{2}$ of a day?
17. How many hours in $\frac{1}{3}$ of a day?
18. How many hours in $\frac{1}{4}$ of a day?
19. How many hours in 2 days?   10 days?
20. How many days in 24 hours?   48 hours?
21. How many days in 5 weeks?   4 weeks, 3 days?
22. How many months in $2\frac{1}{2}$ years? $3\frac{1}{4}$ years?
23. How many bags, each holding 2 bu., are needed to hold 24 bushels?
24. The distance round a square is 4 times 9 inches. How many inches on one side of the square?
25. If you know the price of 9 oranges, how can you find the price of 1 orange?
26. How can you find the price of 8 oranges, if you know the price of one?
27. John is 9 years old, and his father is 3 times as old and 9 years more.   How old is his father?
28. Ella bought 7 yards of cloth at 9¢ a yard, and had 8 cents left.   How much money had she at first?

1. Find the cost of 15 cords of wood at $7 a cord.

2. A room is 18 ft. wide and 20 ft. long. How many square feet in the floor? How many in the ceiling? How many feet of picture-moulding will go round the room?

3. How many square yards in an oil-cloth 3 yd. × 3 yd.? What is it worth, at 75¢ a square yard?

4. How much are 3 cows worth, at $24 each, and 9 horses, at $80 each?

5. Find the cost of 6 tons of coal at $5 a ton, and 35 cords of wood at $5 a cord.

6. Find the cost of 7 hogs at $9 each, and 15 sheep at $6 each.

7. If Harry can earn $8 in one week, in how many weeks can he earn $480?

8. If 3 yards of cloth make a coat, how many coats can be made from 279 yards?

9. Find the number of quarts in 35 gal. 3 qt.

10. Find the number of pecks in 85 bu. 2 pk.

11. How many feet in 8 rd. 7 ft.?

12. If there are 128 cu. ft. in a cord, how much more than a cord is there in a pile of wood 10 ft. × 5 ft. × 4 ft.?

13. A sign-board is 9 ft. long and 6 ft. wide. How much will it cost to paint it, at 5¢ a square foot?

14. In a flower-garden there are 7 rectangular beds. If each bed is 9 ft. × 5 ft., how many square feet are there in all the beds?

15. ½ a pound of prunes is worth 12 cents. What is the cost of ¼ of a pound? Of ⅓ of a pound?

16. What is the cost of 7 sofas if one sofa costs $35?

17. At $5 a cord, what must I pay for 89 cords of wood?

18. If I pay $39 a month to each of 9 men, how much money do I pay out each month?

1. At $7 a barrel, how many barrels can be bought for $413?

2. If 9 cows cost $486, what is the price of one cow?

3. I received $119 for 7 tons of hay. How much was that a ton?

4. How many melons at 9⊄ each can you buy for 315 cents?

5. At $4 a head, how many sheep can be bought for $280?

6. $9 are ¼ of how many dollars?

7. Add:
31 cents, 23 cents, 5 cents, $2 and 8 cents.

8. Add:
$2.65, $4.64, $0.70, $5.25, $0.05, $9.99.

Subtract:

9.	**10.**	**11.**	**12.**	**13.**
$4.77	$2.05	$3.16	$9.84	$6.05
3.66	.84	1.24	5.26	1.03

14.	**15.**	**16.**	**17.**	**18.**
$9.45	$7.09	$4.15	$1.65	$1.23
1.62	4.26	2.88	0.98	0.75

Add:

19.	**20.**	**21.**	**22.**	**23.**
683	341	281	74	722
217	413	408	128	843
241	922	37	763	711
812	961	456	574	126
422	426	891	43	238
635	731	78	290	832

1. (——) × (——) = 24. 2. (——) × (——) = 40.
3. (——) × (——) = 36. 4. (——) × (——) = 88.
5. (——) × (——) = 72. 6. (——) × (——) = 77.
7. (——) × (——) = 12. 8. (——) × (——) = 60.
9. (——) × (——) = 15. 10. (——) × (——) = 24.
11. (——) × (——) = 42. 12. (——) × (——) = 54.
13. (——) × (——) = 25. 14. (——) × (——) = 66.
15. (——) × (——) = 18. 16. (——) × (——) = 14.
17. (——) × (——) = 99. 18. (——) × (——) = 63.
19. (——) × (——) = 84. 20. (——) × (——) = 70.
21. (——) × (——) = 64. 22. (——) × (——) = 32.
23. (——) × (——) = 56. 24. (——) × (——) = 85.
25. (——) × (——) = 16 26. (——) × (——) = 27.
27. (——) × (——) = 28. 28. (——) × (——) = 81.
29. (——) × (——) = 30. 30. (——) × (——) = 90.
31. (——) × (——) = 21. 32. (——) × (——) = 108.
33. (——) × (——) = 35. 34. (——) × (——) = 144.
35. (——) × (——) = 49. 36. (——) × (——) = 121.
37. (——) × (——) = 48. 38. (——) × (——) = 132.
39. (——) × (——) = 9. 40. (——) × (——) = 96.
41. (——) × (——) = 20. 42. (——) × (——) = 120.
43. (——) × (——) = 33. 44. (——) × (——) = 100.
45. (——) × (——) = 45. 46. (——) × (——) = 50.
47. (——) × (——) = 44. 48. (——) × (——) = 55.
49. (——) × (——) = 75. 50. (——) × (——) = 80.
51. (——) × (——) = 78. 52. (——) × (——) = 65.
53. (——) × (——) = 68. 54. (——) × (——) = 82.
55. (——) × (——) = 26. 56. (——) × (——) = 110.

1. Take a 4-inch square and fold it on its diagonal. What form have you now? What part of the square is your right-triangle?

2. What was the area of your square? What then must be the area of the triangle?
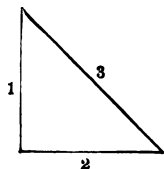
1 is called the altitude.

2 is called the base.

3 is called the hypothenuse.

3. Draw a right-triangle. Write the names of its sides.

4. Draw a right-triangle with a base of 3 inches and an altitude of 4 inches. Find its area.
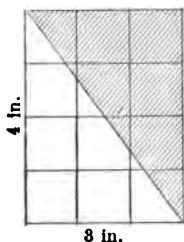
How many square inches in one row in this rectangle?

How many rows?

3 sq. in. × 4 = what?

If the triangle is one-half of the rectangle, how many square inches does the triangle contain?

5. Illustrate and find area of triangles having the following dimensions: —

a. Altitude 8 inches, base 6 inches.
b. Altitude 10 inches, base 8 inches.
c. Altitude 4 inches, base 4 inches.
d. Altitude 6 inches, base 6 inches.
e. Altitude 8 inches, base 7 inches.
f. Altitude 5 inches, base 8 inches.
g. Altitude 9 inches, base 6 inches.
h. Altitude 10 inches, base 10 inches.
i. Altitude 7 inches, base 6 inches.
j. Altitude 5 inches, base 3 inches.
k. Altitude 7 inches, base 5 inches.
l. Altitude 8 inches, base 9 inches.
m. Altitude 12 inches, base 12 inches.

Find the area of each of the following triangles :
 1. Altitude 8 inches, base 8 inches.
 2. Altitude 12 inches, base 8 inches.
 3. Altitude 24 inches, base 9 inches.
 4. Altitude 40 inches, base 7 inches.
 5. Altitude 66 inches, base 9 inches.
 6. Altitude 18 inches, base 6 inches.
 7. Altitude 14 inches, base 9 inches.
 8. Altitude 10 inches, base 4 inches.
 9. Altitude 13 inches, base 6 inches.
10. Altitude 14 inches, base 8 inches.
11. Altitude 16 inches, base 7 inches.
12. Altitude 15 inches, base 10 inches.
13. Altitude 18 inches, base 9 inches.
14. Altitude 20 inches, base 7 inches.
15. Altitude 22 inches, base 5 inches.
16. Altitude 24 inches, base 8 inches.
17. Altitude 23 inches, base 10 inches.
18. Altitude 25 inches, base 6 inches.
19. Altitude 30 inches, base 10 inches.
 20. Two little girls each made a flower garden. One made hers in the form of an isosceles triangle, with the base 12 ft. and the altitude 10 ft. The other made hers in the form of a rectangle 12 ft. long and 5 ft. wide. Which girl had the larger bed ?
 21. A father gave each of his two boys a piece of land 30 ft. long and 10 ft. wide. One boy divided his by making a path from the upper right-hand corner to the lower left-hand corner. In what shape was each part? What was the area of each part ?
 22. The other boy divided his piece by making a path from the middle of the upper side to the middle of the lower side. In what shape was each part? What was the area of each part ?

1. 64 is how many times 8 ?   4 ?

2. 42 is how many times 6 ?   7 ?

3. 40 is how many times 8 ?   5 ?   10 ?

4. If 72 peaches are divided equally among 8 boys, how many does each receive ?

5. If 5 horses eat 10 tons of hay in 6 months, how many tons will 1 horse eat in the same time ?

6. How many yards of cloth at $8 a yard will it take to pay for 6 tons of coal at $8 a ton ?

7. If a barrel of apples is worth $3, what part of a barrel will $1 buy ?

8. If $2 will buy 1 bbl. of apples, how many barrels will $7 buy ?

9. If $\frac{1}{4}$ of a pie costs 2 cents, what will $\frac{1}{2}$ of the pie cost ?   The whole pie will cost how much ?

10. What is $\frac{1}{3}$ of 12 lemons ?

11. If wood is $7 a cord, how many cords can be bought for $8 ?

12. If 9 men can do a piece of work in 8 days, how many men can do the same work in 1 day ?

13. If you cut each of 3 apples into thirds, how many pieces will you have ?

14. How many yards of cloth at 7¢ a yard can you buy for 49 cents ?

15. If a boy has 30 cents, and buys tops at 8¢ each, how many tops can he buy ?   At 5 for a cent how many marbles can he buy with the rest of his money ?

16. How many spools of thread at 4¢ each can you buy for 25 cents ?   How many cents will you have left ?

17. A boy has $2¼.   How much will he have left after buying a ball for 25 cents ?

18. One half of a number is 22.   What is the number ?

19. At 6¢ a yard, what is the cost of 5 yards of tape ?

20. What is the cost of 9 tons of coal, at $6 a ton ?

1. How much will you receive for 8 cows, at $45 each? If they cost you $325, how much did you gain?

2. If you give a 2-dollar bill for 8 lb. of beef at 15¢ a pound, how much change ought you to receive?

3. How many yards of fence will it take to enclose a field 54 ft. long and 36 ft. wide?

4. How many square inches in the top of a desk that is 2 ft. 6 in. long and 8 in. wide?

5. How many inches is it round the desk?

6. Make 5 problems about articles bought at a grocery store, to illustrate " change."

7. The same at a market.

8. The same at a shoe-store.

9. The same at a dry-goods store.

10. The same at a fruit and candy store.

11. A man sold 9 cows at $22 each, and a horse for $130. How much did he receive for them all?

12. If you read 23 pages each day, how many pages will you read in a week?

13. I have a box 8 ft. long, 7 ft. wide, and 6 ft. deep. How many blocks can I pile into it, if each block is just a cubic foot?

14. How many square feet of cloth will it take to cover the top of this box? One of the sides?

15. How many square yards in the floor of a room 15 yd. long and 9 yd. wide?

16. How many square yards in the ceiling of the same room?

17. A boy earned 80 cents a day, and spent 50 cents a day. How much did he save in a week?

18. If $\frac{1}{2}$ a yard of cloth is worth $2, what are 3 yards worth?

19. If half a dozen eggs cost 8 cents, what will 3 doz. cost?

1. Add 236, 48, 162, 9, 274, 81, 407.

2. Add 94, 168, 274, 7, 49, 162, 93.

3. $418 + 98 + 119 + 8 + 65 + 381 + 78 + 197 = ?$

4. $9 + 87 + 864 + 789 + 46 + 5 + 19 + 406 = ?$

5. Take 485 from 671.

6. Take 243 from 415.

7. $914 - 463 = ?$ $823 - 464 = ?$

8. Multiply 674 by 7.

9. Multiply 816 by 9.

10. $234 \times 6 = ?$ $358 \times 5 = ?$

11. Divide 975 by 5.

12. Divide 828 by 9.

13. $964 \div 4 = ?$ $840 \div 7 = ?$

14. From 348 take 165.   From 726 take 319.

15. From 818 take 567.   From 192 take 87.

16. What is 5 times 298?

17. 475 multiplied by 6 gives what number?

18. 394 multiplied by 7 gives what number?

19. 712 divided by 8 is ———.

20. 756 divided by 9 is ———.

21. How much are $1.62, $1.02, $.74, and $7.25?

22. Add $8.05, $.41, $6.19, $.84, and $.04.

23. Find $\frac{1}{3}$ of 111, 201, 345, 675.

24. Find $\frac{1}{4}$ of 268, 312, 516, 712.

25. Take 274 from 465.

26. Take 317 from 722.

27. Add 184, 46, 279, 38, 9, 278, 845.

28. Add 66, 174, 38, 245, 95, 319.

29. Multiply 263 by 9.

30. Multiply 675 by 8.

31. Divide 885 by 5.

32. Add $6.19, $7.26, $.62, $7.09.

33. Subtract 178 from 617.

34. Multiply 765 by 9.

1. At 8¢ a mile, what will it cost to ride 9 miles?

2. What will 9 qt. of cherries cost, at 12¢ a quart?

3. If 4 men can do a piece of work in 6 days, how long will it take 1 man to do it?

4. How many quarts in 7 pk. 3 qt.?

5. How many pecks in 20 bu. 3 pk.?

6. If a bag of flour will last 8 persons 12 days, how long will it last 1 person?

7. What will 8 lb. of maple-sugar cost, at 9¢ a pound?

8. How many feet in 12 yd. 2 ft.?

9. How many quarts in 3 gal. 3 qt.?

10. If two men start from the same place and travel in opposite directions, one at the rate of 4 miles an hour, the other 3 miles an hour, how far apart will they be in 1 hour? In 3 hours?

11. What is one of the five equal parts of 30?

12. What part of 4 is 1?

13. What is $\frac{1}{8}$ of 24? 32? 40? 48?

14. How many tons of coal, at $7 a ton, can be bought for $63?

15. A farmer sold 5 tons of hay at $12 a ton. How much did he receive? He took his pay in flour at $6 a barrel. How many barrels did he receive?

16. An express train travelled 360 miles in 9 hours. At what rate per hour was that?

17. How many cords of wood at $4 a cord will pay for 8 pairs of boots at $6 a pair?

18. If you have $1 to buy 8 yd. of muslin at 12¢ a yard, how much will you have left after making the purchase?

19. How many peaches, at 4¢ each, can you buy for 27 cents, and how many cents will you have left?

20. 9 is $\frac{1}{9}$ of what number?

21. $7 + 8 - 5 - 4$ is $\frac{1}{3}$ of what number?

1. I deposited $175 in a bank, and a few days later withdrew $87.

2. During the past 4 weeks Nellie has been absent from school 3 days.

3. John bought a knife for 30 cents and sold it so as to gain $\frac{1}{5}$ as much as it cost.

4. A man bought 8 bushels of potatoes at 72 cents a bushel.

5. He sold the potatoes at 25 cents a peck.

6. A farmer sold 2 horses for $340. He received $175 for one of them.

7. When 2 tons of hay cost $30, I bought 5 tons.

8. I bought 3 pecks and 7 quarts of walnuts.

9. In an orchard there are 8 rows of trees and 48 trees in each row.

10. A man bought a coat and vest for $19, a hat for $3, and a pair of gloves for $2.

11. A bushel of wheat weighs 60 lb. There are 7 bushels in a bin.

12. A train started at 9.30 A. M. and stopped at 11 A. M. It moved 30 miles an hour.

13. 7 pupils are absent to-day. $\frac{1}{6}$ of the pupils are absent.

14. 4 pupils are absent to-day. $\frac{7}{8}$ of the pupils are present.

15. 9 pounds of butter were sold at 19¢ a pound.

16. A man earns $65 a month and saves $\frac{1}{5}$ of it.

17. A boy gathered a bushel of walnuts. He sold $\frac{3}{4}$ of them.

18. There are 650 pupils in our school. $\frac{1}{5}$ of them are in the second grade.

19. A man sold 9 cows for $504.

20. A boy has $2.60 in dimes.

21. His sister has $1.75 in 5-cent pieces.

1. Add 603, 56, 645, 6, 54, 563, 460, 43, 646.

2. Divide 768 by 6.

3. From 760 take 453.

4. A man bought a lot for $725 and built a barn on it for $875. Together they cost him ———— dollars.

5. I sold my horse for $155. If I lost $16, what did the horse cost me?

6. At a church collection $9.47 was taken in one box, $5.65 in another, $7.39 in a third, and $7.15 in a fourth. How large was the collection?

7. How many pecks are there in 2 bu. 3 pk.?

8. $746 are $286 more than how much?

9. A man had 845 head of cattle and bought 167 more. He then had ———— cattle. If he should then sell 425, how many would he have left?

10. A man bought a horse for $140 and sold it at a gain of $20. He sold it for ———— dollars.

11. How much less than $750 are $465?

12. Find the cost of 9 horses at $145 each. Find the cost of 9 cows at $48 each. Find the cost of both cows and horses.

13. A dealer sold 76 tons of coal at one time, 157 tons at another, and 375 tons at a third, and had 746 tons left. How many tons had he at first?

14. How many rods of fence will enclose a rectangular field 175 rods long and 167 rods wide?

15. A farmer received $746 for his wheat and $185 less for his potatoes. How much did he receive for his potatoes? How much for both wheat and potatoes?

16. A man bought 168 sheep at $5 a head. How much did he pay for them?

17. A man bought a horse and carriage for $550. If the horse cost $275, what did the carriage cost?

18. Add $2.40, $1.60, $2.36, and 42 cents.

1. A girl has divided an apple into 3 equal parts, and given away one of the parts. What part of the apple was given away?

2. A boy having 5 cents spends one of them. What part of his money has he spent?

3. A farm was divided equally among 3 sons and 4 daughters. What part of the farm did 1 daughter get? What part did the 4 daughters get?

4. A boy had $3.25, and spent $2. How much money had he left?

5. A girl cut ½ of an apple so as to make fourths of an apple. How many fourths did she make?

6. If you had ¼ of an orange, how many eighths of an orange could you get out of it?

7. Change ⅓ to twelfths.

8. How many fifths in 3⅗?

9. Begin with 8, and count by 9's to 99.

10. Begin with 7, and count by 9's to 99.

11. Begin with 6, and count by 9's to 99.

12. Begin with 5, and count by 9's to 99.

13. On 1 rose bush there are 12 roses, on another 8, and on a third 9. How many roses in all?

14. I spent 5 cents for a top, 6 cents for a kite, and have 10 cents left. What had I at first?

15. If I buy a knife for 9 cents and sell it for 16 cents, what do I gain?

16. A cask when full contained 15 gallons. After 6 gallons had been drawn out, how many gallons remained?

17. A boy has 17 marbles, and gives away 9. How many has he left?

18. A man rode 16 miles, and walked 13 miles. How many miles did he travel?

19. What part of a foot is 9 inches?

1. I paid $5.95 for 7 bu. of potatoes.

2. A merchant sold goods for $983 and by so doing gained $95.

3. A man had 175 sheep in each of two fields and 197 sheep in another field.

4. Frank has $2.07 in his bank. Yesterday he had $3.15.

5. Lucy paid $.65 for a doll, $1.25 for a pair of slippers and $.38 for some ribbon.

6. A man saved $261 at the rate of $3 a day.

7. A and B own 876 acres of land. A owns $\frac{1}{4}$ of it.

8. $8.40 were equally distributed among 7 children.

9. $61 is $5 more than what 7 tons of coal cost.

10. Charles has been in school 60 days.

11. George bought a pair of shoes for $2.50 and a hat for $1.50. He gave the merchant a 5-dollar bill.

12. A man sold 7· barrels of potatoes for $1.65 a barrel.

13. There are 27 problems in the arithmetic lessons. Lucy failed in solving $\frac{1}{9}$ of them.

14. A box is 15 in. long and 9 in. wide.

15. A boy sold a watch at a gain of $3. He received $27 for it.

16. A man had $384. He gained enough to make $524.

17. A milkman had 352 pt. of milk in quart bottles.

18. A man sold 175 sheep at one time, 168 at another time and had 147 sheep left.

19. A man earns $26 a week and his son earns $\frac{1}{2}$ as much.

20. The base of a triangle is 35 ft. and its altitude is 18 ft.

21. I paid $27 for a harness and 7 times as much for a horse.

The pupils should practice on this lesson until they can give the quotient figure and remainder without hesitation. This work should prepare them for division.

1.	**2.**	**3.**	**4.**	**5.**
$17 \div 4 =$	$16 \div 5 =$	$17 \div 6 =$	$12 \div 7 =$	$19 \div 8 =$
$21 \div 4 =$	$22 \div 5 =$	$23 \div 6 =$	$24 \div 7 =$	$35 \div 8 =$
$33 \div 4 =$	$31 \div 5 =$	$38 \div 6 =$	$36 \div 7 =$	$46 \div 8 =$
$25 \div 4 =$	$42 \div 5 =$	$41 \div 6 =$	$43 \div 7 =$	$55 \div 8 =$
$30 \div 4 =$	$47 \div 5 =$	$51 \div 6 =$	$51 \div 7 =$	$66 \div 8 =$

6.	**7.**	**8.**	**9.**	**10.**
$19 \div 9 =$	$11 \div 3 =$	$21 \div 9 =$	$17 \div 8 =$	$18 \div 7 =$
$24 \div 9 =$	$17 \div 3 =$	$29 \div 9 =$	$51 \div 8 =$	$26 \div 7 =$
$35 \div 9 =$	$22 \div 3 =$	$32 \div 9 =$	$63 \div 8 =$	$31 \div 7 =$
$47 \div 9 =$	$28 \div 3 =$	$49 \div 9 =$	$47 \div 8 =$	$46 \div 7 =$
$74 \div 9 =$	$19 \div 3 =$	$55 \div 9 =$	$39 \div 8 =$	$32 \div 7 =$

11.	**12.**	**13.**	**14.**	**15.**
$19 \div 6 =$	$26 \div 5 =$	$31 \div 4 =$	$21 \div 6 =$	$18 \div 8 =$
$35 \div 6 =$	$33 \div 5 =$	$29 \div 4 =$	$28 \div 6 =$	$21 \div 8 =$
$26 \div 6 =$	$39 \div 5 =$	$27 \div 4 =$	$31 \div 6 =$	$27 \div 8 =$
$29 \div 6 =$	$29 \div 5 =$	$23 \div 4 =$	$57 \div 6 =$	$75 \div 8 =$
$51 \div 6 =$	$19 \div 5 =$	$19 \div 4 =$	$45 \div 6 =$	$67 \div 8 =$

16.	**17.**	**18.**	**19.**	**20.**
$17 \div 9 =$	$17 \div 7 =$	$13 \div 5 =$	$16 \div 3 =$	$20 \div 9 =$
$86 \div 9 =$	$69 \div 7 =$	$37 \div 5 =$	$29 \div 3 =$	$23 \div 9 =$
$71 \div 9 =$	$58 \div 7 =$	$27 \div 5 =$	$26 \div 3 =$	$26 \div 9 =$
$63 \div 9 =$	$55 \div 7 =$	$32 \div 5 =$	$20 \div 3 =$	$31 \div 9 =$
$69 \div 9 =$	$41 \div 7 =$	$41 \div 5 =$	$23 \div 3 =$	$37 \div 9 =$

1. When cheese is 18 cents a pound, how much can I buy for 6 cents?

2. Two boys have made a snowman 6 ft. high. How many yards high is he?

3. I saw 6 sleds going down a hill, and on each sled was 1 girl and 2 boys. How many children did I see sliding down hill?

4. How many peaches can Grace buy for 18 cents at 12ℱ a dozen?

5. What must I pay for ½ gallon of oil at 4ℱ a pint?

6. If bananas are 5 cents each, how much less than 18 cents must you pay for ¼ dozen?

7. Charles is 19 years old and his sister Mary is 7 years younger. How old is Mary?

8. A farmer had 13 sheep, but 3 died; then he killed 2, and bought 9 more. How many had he then?

9. A teacher gave every pupil in her class a cent. If she used two dimes, how many are in her class?

10. If I have 5 apples, and cut each of them into fourths, to how many children can I give each one piece?

11. What will 2½ pounds of rice cost at 8 cents a pound?

12. Alice's father gave her $2 every two months. How many dollars did he give her in a year?

13. If Grace drinks 1 pint of milk every day, how many days will it take her to drink 1 gallon?

14. Ned and Dick each have a peach tree. There are 26 peaches on Ned's tree, but only ½ as many on Dick's tree. How many peaches on Dick's tree?

15. If apples are 2 cents each, how much must I pay for ¾ of a dozen?

16. What 9 equal pieces of money make 45 cents?

17. If a box cover is 7 in. long and 6 in. wide, how many square inches does it contain?

Add :	1.	2.	3.	4.	5.	6.
	27	96	27	88	78	65
	46	85	34	77	78	74
	53	74	97	66	78	83
	62	63	89	55	78	92
	78	52	77	44	78	57
	94	41	66	33	78	48
	87	30	88	22	78	39
	95	29	47	11	78	62
	36	18	38	16	78	71
	44	46	14	18	78	80

Add :	7.	8.	9.	10.	11.
	126	246	129	247	633
	325	272	264	247	363
	475	316	725	247	336
	672	419	436	247	478
	875	792	844	247	748
	127	748	712	247	874
	455	899	678	247	847
	674	463	426	247	784
	555	571	815	247	517
	472	843	704	247	751

Multiply :

12.	13.	14.	15.	16.	17.
84	76	98	45	68	94
6	7	7	5	6	4

Multiply :

18.	19.	20.	21.	22.	23.
287	175	367	447	357	578
4	7	8	6	5	8

1. Add: $17.41, $82.74, $63.89, $78.23, $67.98, $27.14, $19.19, $24.81, $18.00, $42.18, $24.04, $87.21.

2. Change 144 cents to dollars and cents.

3. A farmer sold 60 bu. of apples at $2 a bushel. How many pigs can he buy at $4 each with the money?

4. What is the cost of half a bushel of beans at 8¢ a quart?

5. What is the cost of 2 bu. of apples at 30¢ a peck?

6. What is the cost of 12 doz. eggs at 1¢ each?

7. What is the cost of 9 doz. oranges at 12¢ a half dozen?

8. What is the cost of 6 gal. of oil at 2¢ a pint?

9. How many feet in 6 yd. 2 ft.?

10. How many pecks in 3 bu. 4 pk.?

11. How many quarts in 4 pk. 6 qt.?

12. How many quarts in 19 gal. 3 qt.?

13. How many pints in 3 qt. 1 pt.?

14. What is the cost of 76 cords of wood at $5 a cord?

15. If ½ of a pound of sugar costs 3¢, what will 9 pounds cost?

16. If 1 doz. lemons cost 36 cents, what will 50 lemons cost?

Find the cost:

17. Of 4 lb. of coffee at 28¢ a pound.

18. Of 4 lb. of tea at 75¢ a pound.

19. Of 10 lb. of sugar at 12¢ a pound.

20. Of 9 lb. of rice at 11¢ a pound.

21. Of 8 cans of peaches at 35¢ a can.

22. Of 7 cans of tomatoes at 27¢ a can.

23. Of 16 yd. of muslin at 9¢ a yard.

24. Of 9 yd. of flannel at 35¢ a yard.

25. Of 6 pairs of socks at 37¢ a pair.

26. Of 7 yd. of trimming at 14¢ a yard.

27. Of all the articles in the last four examples.

1. 6 is ⅙ of what number?   12 is what part of 24?

2. An orchard has 54 trees in 6 rows.   How many trees are in a row?

3. I went to the store with 10 cents, and spent 5 cents.   What part of my money did I spend?

4. I spent 12 cents out of 36 cents.   What part of my money did I spend?

5. If 6 chickens cost $1, what will 12 chickens cost? 24 chickens?

6. A man having $24, paid $6 for a hat.   What part of his money did he spend?   How many dollars did he have left?

7. Find the cost of 9 lb. of cheese at 6¢ a pound.

8. Make an example to include 3 purchases at a grocery store, but the sum spent must be less than $1. Make change.

9. Make an example to illustrate change from a $5 bill and to include 3 purchases at a dry-goods store.

10. If a cow gives 6 qt. of milk a day, how many gallons does she give in 6 days?

11. How many minutes in ¼ of an hour?

12. How many hours in ⅙ of a day?

13. What will ¼ of 49 yd. of cloth cost at $5 a yard?

14. How many inches are there in a line 7 ft. long?

15. $28 is $7 more than 3 tons of coal cost.   What does 1 ton cost?

16. A boy, being asked how many marbles he had, replied, "If I had 7 times as many, I should have 84." How many marbles had he?

17. At 12¢ an hour, how many hours will it take you to earn enough to buy a bat and ball if they cost 72 cents?

18. If you buy 38 cents worth of cloth, how much change will the clerk give you out of a half-dollar?

1. In an orchard there are 179 peach-trees, 157 pear-trees, 256 apple-trees, and 75 plum-trees. How many trees are there in the orchard?

2. A man bought a carriage for $165, and a horse for $48 more than he paid for the carriage. How much did he pay for both?

3. A man sold a piece of land for $965, and lost $176. How much did he pay for it?

4. A man bought a span of horses for $475, and sold them at a gain of $145. How much did he receive for the span?

5. After a man had sold 677 bu. of wheat, he had 248 bu. left. How many bushels did he raise?

6. A man has 147 sheep in one field, and in another field 58 more than in the first field. How many sheep has he?

7. A piece of land that cost $789 was sold at a profit of $475. How much was received for it?

8. A has $476, which sum is $428 less than B has. How many dollars have both?

9. A wholesale dealer sold 568 bbl. of flour to one man, 496 bbl. to another, 374 bbl. to another, and had 689 bbl. left. How many barrels had he at first?

10. George has 97 marbles, which number is 75 less than his brother has. How many have both?

11. A merchant bought 5 bales of cloth. The first contained 679 yd., the second 768 yd., the third 679 yd., the fourth 717 yd., and the fifth 865 yd. How many yards did he buy in all?

12. A steamship sailed 212 miles on Sunday, 235 miles on Monday, 186 miles on Tuesday, 245 miles on Wednesday, 208 miles on Thursday, 198 miles on Friday, and 218 miles on Saturday. How many miles did she sail in the week?

1. A boy earns $4.25 a week and spends $3.50.   He spends how much less than he earns?

2. A man bought a piece of land for $874.   If at the time of purchase he paid $687, how much does he still owe?

3. Mr. Clark has $467, and Mr. Hyde $723.   How much more money has Mr. Hyde than Mr. Clark?

4. A man had 926 acres of land, and sold 688 acres. How many acres had he left?

5. A man had $9.72 in his pocket, and spent $5.97. How much had he left?

6. A man sold some sheep for $72, which was $18 more than they cost.   How much did he pay for them?

7. In our school there are 672 pupils.   If there are 389 girls, how many boys are there?

8. I bought a cow for $72, and sold her for $58. How much did I lose?

9. Charles had $1.68.   His mother gave him enough to make $3.00.   How much did his mother give him?

10. The sum of two numbers is 645.   If one of them is 257, what is the other?

11. A rectangular field is 60 rd. long and 46 rd. wide. How much greater is the length than the width?

12. A farmer paid $115 for a horse, and $85 for some cows.   How much less did the cows cost than the horse?

13. A merchant sold 135 yd. from a piece of cloth 147 yd. in length.   How many yards had he remaining?

14. A cattle-dealer sold some cows at a loss of $314, and some oxen at a gain of $402.   How much did he gain in all?

15. A grocer bought 784 lb. of sugar and sold 593 lb. How many pounds had he left?

16. A man earns $12.50 in a week, and spends $7.75. How much does he save?

1. If marbles sell at the rate of 4 for a cent, how many can I buy for 12 cents?

2. What ten pieces of money make one half a dollar?

3. How many quarts in $\frac{1}{4}$ of a bushel? How many quarts in a peck?

4. What will $\frac{1}{8}$ of a bushel of corn cost at 6 cents a quart?

5. There are how many pecks in 4 bu. 2 pk.?

6. If a pound of sand is divided into 16 packages, how much does each package weigh?

7. Give the abbreviation for ounce and pound.

8. If I put 4 lb. of sugar into 8 packages, what part of a pound do I put into one package? How many ounces?

9. What will $\frac{1}{2}$ pound of candy cost at 2¢ an ounce?

10. A pint is ———— times as large as a gill.

11. 1 gal. = ———— qt., or ———— pt., or ———— gills.

12. From seven o'clock in the morning till 8 o'clock in the evening is how many hours?

13. If you divide 6 apples among your playmates, giving each playmate $\frac{1}{3}$ of an apple, how many playmates have you?

14. How many thirds in $\frac{4}{6}$ of an apple?

15. In $\frac{1}{2}$ of a bushel there are how many sixths of a bushel?

16. Give $\frac{2}{5}$ of an orange to your sister. What part of the orange did you give her?

17. If you give each playmate $\frac{2}{3}$ of a pear, to how many playmates would you give 5 pears?

18. How much are a quarter of a dollar, a dime, a five-cent piece and 7 cents?

19. What 3 equal numbers make 21?

20. What will 11 boxes of matches cost, at 7¢ a box?

21. At 9¢ a pound, what will 10 pounds of sugar cost?

Multiply \$2.24 by 4.

\$2.24 Do not attempt to explain multiplication of
 4 decimals. Merely lead the pupils to see that
————— the point in the answer is directly beneath the
\$8.96 point in the multiplicand.

1. At \$5.75 a week for board, what is the cost of 9 weeks' board?

2. Find the cost of 8 bbl. of apples at \$2.45 a barrel.

3. At \$3.55 each, find the cost of 7 hats.

4. How much will a man receive for 5 days' work at \$1.65 a day?

5. At \$2.85 a barrel, what will 9 barrels of apples cost?

6. What will 8 bbl. of potatoes cost at \$2.65 a barrel?

7. Find the cost of 6 chairs at \$3.25 each.

8. Find the cost of 5 yd. of silk, when one yard costs \$2.50.

9. When one barrel of flour costs \$5.50, find the cost of 7 barrels.

10. Find the cost of 9 bu. of onions at \$1.05 a bushel.

11. Find the cost of 8 lb. of coffee at 28\textcent{} a pound.

12. If a clerk earns \$3.75 each day, how much will he earn in 7 days?

13. If one pair of shoes costs \$2.25 a pair, what will 6 pairs of shoes cost?

14. How much will 4 barrels of flour cost at \$4.25 a barrel?

15. If a boy earns \$5.75 a week, how much will he earn in 9 weeks?

16. What will 5 gal. of syrup cost at \$.85 a gallon?

17. What will 4 yd. of alpaca cost at \$0.67 a yard?

18. What will 7 tons of hay cost at \$18.75 a ton?

19. When wood is selling at \$6.45 a cord, what must you pay for 8 cords?

Divide $4.64 by 4.

$1.16   See note on page 174. Let the pupils see
4)$4.64 that the point in the answer is directly above
        the point in the dividend.

1. If 3 hats cost $7.50, what will one hat cost?

2. If 5 barrels of flour cost $27.50, what will 1 barrel cost?

3. If 6 dozen eggs cost $1.44, what is the price of 1 dozen?

4. How many weeks of 7 days each are there in 364 days?

5. A father divided $19.20 equally among his 6 children. How much did each child receive?

6. At $5 a ton how many tons of coal can you buy for $875?

7. Find the cost of 1 ton of coal, when 6 tons cost $50.76.

8. A farmer bought 9 cows for $612. What was the average price of a cow?

9. When 9 pairs of shoes cost $52.65, what is the price of one pair?

10. 6 bbl. of oil cost $31.80. What will 1 barrel cost?

11. Find the cost of 1 crate of peaches, when 5 crates cost $13.25.

12. When 8 pounds of camphor cost $2.56, what is the price of camphor a pound?

13. When 8 lb. of meat cost $2.32, what will 1 pound cost?

14. What is the price of board a week, when $40.50 is paid for 9 weeks' board?

15. If 7 tons of coal cost $59.92, what will 1 ton cost?

16. Find the cost of 1 barrel of apples when 7 barrels cost $18.55.

17. What will 1 book cost when 9 books cost $14.85?

1. If 4 men can do a piece of work in 6 days, how long will it take them to do twice as much work?

2. What is ½ of 8? ⅓ of 9?

3. How many rods in a field 10 rods square?

4. At $2 a rod, what will it cost to fence a field 10 rods square?

5. How many square feet in the floor of a room 6 ft. wide and 9 ft. long?

6. How many marbles did a boy lose, if he lost ¼ of 48 marbles?

7. How far is it around a flower-bed that has 7 sides, and each side 6 ft. long?

8. Make a problem for 7 × 6. Also for ⅙ of 42.

9. How many squares, 3 in. on a side, can you cut from a 9-inch square?

Note. — If pupils do not readily see the answer to this problem, let them draw the squares. As soon as possible train them to form a mental picture or image of the objects.

10. There are 72 square feet in the floor of a room. What part of the floor is covered with a rug 4 ft. by 2 ft.?

11. If a square is 5 in. on a side, how many square inches does it contain?

12. A gardener has a square flower-bed that contains 36 sq. ft. How many feet in length is each side?

13. If he makes a diagonal path, into what two equal forms has he divided it? How many square feet are there in each, if we do not deduct anything for the width of the path?

14. One piece of land contains 4 square feet, another is 4 ft. square. Which piece is the larger, and how many square feet larger?

The chief aim has been to secure *accuracy.* Strive now to secure rapidity as well as accuracy.

1.	2.	3.	4.	5.
576	432	278	333	278
832	289	179	33	461
45	41	63	3	947
.763	5	45	3	75
9	28	7	33	123
178	478	277	333	71
47	915	165	444	726
267	497	741	666	469

6.	7.	8.	9.	10.
666	276	789	147	746
555	794	567	144	57
44	519	432	96	84
3	71	961	801	231
77	275	278	462	642
888	67	167	85	44
22	111	729	897	485
999	75	836	448	584

11.	12.	13.	14.	15.
690	67	373	124	82
909	872	738	115	95
987	436	534	110	178
897	360	96	121	542
28	61	81	487	427
298	294	261	931	912
985	943	619	93	396
589	327	291	87	235
49	54	728	389	78
126	463	135	986	624

See note page 177. Do not permit inaccurate work while striving for rapidity.

1.	**2.**	**3.**	**4.**	**5.**	**6.**
752	505	324	231	747	237
675	384	197	87	563	175

7.	**8.**	**9.**	**10.**	**11.**	**12.**
162	421	370	496	471	390
98	276	189	279	297	289

13.	**14.**	**15.**	**16.**	**17.**	**18.**
908	325	376	623	919	162
706	195	286	574	816	99

19.	**20.**	**21.**	**22.**	**23.**	**24.**
591	722	305	852	143	428
436	574	167	794	76	275

25.	**26.**	**27.**	**28.**	**29.**	**30.**
154	750	644	581	237	812
126	645	556	438	119	706

31.	**32.**	**33.**	**34.**	**35.**	**36.**
626	381	645	804	663	538
575	267	473	764	574	235

37.	**38.**	**39.**	**40.**	**41.**	**42.**
486	970	275	754	242	827
379	816	175	368	198	736

43.	**44.**	**45.**	**46.**	**47.**	**48.**
352	129	544	327	413	147
172	78	376	274	297	126

1. John has 6 marbles, and James has 3 times as many less 3. How many has James? Henry has as many as John and James. How many has Henry?

2. A teacher receives $9 a week and spends $6. In how many weeks will she save $24?

3. If a man earn $8 a week and a boy $3, how much more will the man earn in 6 weeks than the boy?

4. If 7 men can do a piece of work in 8 days, how long will it take 1 man to do it?

5. Mary is reading a book of 45 chapters. If she reads 9 chapters a day, how many days will it take her to read the book?

6. At $6 a barrel, how many barrels of flour can be bought for $72?

7. How many chairs, at $4 each, can be bought for $36?

8. Draw a right-triangle that is 7 in. long and 4 in. high. How many square inches does it contain?

9. How does the area of this triangle compare with the area of a rectangle having the same measurements?

10. If 6 men can do a piece of work in 8 days, how many men can do it in 4 days?

11. A grocer sold $\frac{1}{8}$ of a cheese to one lady, $\frac{2}{8}$ to another, $\frac{3}{8}$ to another, $\frac{3}{8}$ to another. How many eighths did he have left if he had 2 cheeses at first?

12. A boy had 50 cents, and gave $\frac{1}{2}$ of it for a knife, and $\frac{1}{5}$ of what was left for candy. How many cents had he then?

13. What is the cost of 11 yd. of braid at 6¢ a yard?

14. If $\frac{1}{3}$ of a barrel of flour will last a family 5 weeks, how long will $\frac{2}{3}$ last them? $\frac{3}{3}$?

15. 7 is $\frac{1}{6}$ of what number?

16. A boy having 12 cents spent 7, and then found 9. How many cents had he then?

(See notes pages 177, 178.)

1.	2.	3.	4.	5.	6.
184	841	235	352	605	134
7	4	9	3	5	6

7.	8.	9.	10.	11.	12.
341	583	358	470	704	731
2	5	6	8	· 2	3

13.	14.	15.	16.	17.	18.
137	206	602	453	432	154
7	3	8	3	4	6

19.	20.	21.	22.	23.	24.
375	650	232	424	563	615
3	9	3	5	2	5

25.	26.	27.	28.	29.	30.
726	374	363	955	487	294
5	7	4	8	6	·3

31.	32.	33.	34.	35.	36.
293	324	344	527	765	486
4	8 ·	5	7	8	4

37.	38.	39.	40.	41.	42.
392	839	677	673	524	682
5	8	9.	6	5	5

43.	44.	45.	46.	47.	48.
947	833	796	948	463	247
9	7	7	9	2	3

(See notes pages 177, 178.)

1. 2) 200   **2.** 3) 630   **3.** 3) 600   **4.** 4) 480

5. 4) 800   **6.** 2) 220   **7.** 3) 900   **8.** 3) 369

9. 2) 240   **10.** 4) 840   **11.** 3) 690   **12.** 7) 770

13. 2) 400   **14.** 5) 550   **15.** 2) 462   **16.** 4) 488

17. 4) 844   **18.** 4) 208   **19.** 6) 486   **20.** 7) 357

21. 5) 355   **22.** 2) 206   **23.** 4) 240   **24.** 8) 648

25. 2) 120   **26.** 3) 186   **27.** 6) 666   **28.** 5) 250

29. 2) 864   **30.** 5) 555   **31.** 4) 240   **32.** 4) 260

33. 2) 170   **34.** 4) 140   **35.** 8) 688   **36.** 3) 210

37. 7) 294   **38.** 8) 424   **39.** 3) 138   **40.** 6) 330

41. 8) 432   **42.** 9) 585   **43.** 9) 567   **44.** 4) 140

45. 7) 364   **46.** 7) 595   **47.** 8) 424   **48.** 5) 260

49. Divide each of the following numbers by 3, 4, 5, 6, 7, 8, 9.

132	355	342	414	312
240	245	132	288	738
248	160	276	472	441
336	475	546	544	504
384	230	450	336	696

1. If 4 pears cost 16¢, how much will 5 pears cost?

2. If 12 inkstands cost 96¢, what will 2 cost?

3. How many men can do as much work in 5 days as 6 men can do in 10 days?

4. How long will it take 1 man to do as much work as 7 men can do in 8 days?

5. How long will it take 2 men to do as much work as 6 men can do in 3 days?

6. How many times 9 in 63?　7 in 63?

7. How many times 6 in 18?　7 in 28?

8. If a man can travel 6 miles an hour, in how many hours can he travel 42 miles?

9. If a man travels 42 miles in 7 hours, how far does he travel in 1 hour?

10. How many hours will it take a man to travel 42 miles, at the rate of 6 miles an hour?

11. At 5¢ a yard, how many yards of ribbon can you buy for 40 cents?

12. If for 40 cents you can buy 8 yd. of ribbon, what is the price of one yard?

13. If 1 yd. of ribbon costs 5 cents, what will 8 yd. cost?

14. If a hogshead of molasses cost $20, for what ought I to sell it to gain $\frac{1}{5}$ of what it cost?

15. I bought a horse for $80, and in selling it I lost $\frac{1}{4}$ of what it cost. How much did I lose?

16. A man bought a cow for $36, and in selling it gained $\frac{1}{3}$ of what it cost. How much did he gain?

17. A man bought a yoke of oxen for $100, and in selling, gained $75. For how much did he sell the oxen?

18. What is $\frac{1}{6}$ of $48?　$\frac{1}{8}$ of $48?

19. Count by 7's from 7 to 84, and back.

20. Count by 8's from 8 to 96, and back.

21. Count by 7's from 2 to 51, and back.

In the Roman Notation seven letters are employed. I. = 1, V. = 5, X. = 10, L. = 50, C. = 100, D. = 500, M. = 1000.

1. 1   2   3   4   5   6   7   8   9   10

    I.   II.   III.   IV.   V.   VI.   VII.   VIII.   IX.   X.

Notice that when letters are placed side by side of equal value, or when they diminish in value from left to right, we add the value of each to find the whole value. III. = 1 + 1 + 1 = 3.   VIII. = 5 + 1 + 1 + 1 = 8.

When a letter is placed before one of greater value, the difference of their values is taken.   IV. = 5 − 1 = 4. IX. = 10 − 1 = 9.

2. Placing X. before each of the numbers in 1 gives the numbers from 11 to 20.   Write them.

3. XX. = 20.   Placing it before each of the numbers in 1 gives the numbers from 21 to 30.   Write them.

4. XXX. = 30.   Write the numbers from 31 to 39.

5. XL. = 40.   Write the numbers from 41 to 49.

6. L. = 50.   Write the numbers from 51 to 59.

7. LX. = 60.   LXX. = ?   LXXX. = ?   XC. = 90. C. = 100.   Write the numbers from 60 to 100.

8. How is four usually written on the dial of a clock?

9. Read: XCVII., XXIV., LXVI., XXXIII., XIX., XXIX., XLV., LVII., LXIV.

10. Write in Roman numerals: 17, 84, 63, 99, 48, 27, 56, 72, 88, 66.

11. Read: XLIX., XXVIII., LVI., XCIV., LXXXIV., LXXVIII.

12. Write in Roman numerals: 96, 58, 106, 135, 150, 119, 125, 147, 184, 192.

NOTE. — Because of limited use but little time should be spent on Roman Notation.

1. A man traveled 478 miles on Monday, and 386 miles on Tuesday.

2. A farmer paid $315 for sheep. Each sheep cost him $9.

3. A man bought a carriage for $145, and a horse for $65 more than he paid for the carriage.

4. A lady paid $5.25 for a hat, and 3 times as much for a cloak.

5. A man sold 8 yards of silk at $4.65 a yard.

6. A merchant had 7 yd. 2 ft. of ribbon in a piece, after he had cut off 8 yd. 1 ft.

7. A has $276 and B has $154.

8. A had $487 left after paying a bill of $286.

9. 9 bushels of potatoes cost $8.10.

10. A has 148 sheep, and B has 6 times as many.

11. A farmer received $276 for 6 cows.

12. A father gave his son $725 and his daughter $175 less.

13. A grocer bought 7 barrels of flour at $3.85 a barrel.

14. A man bought a horse for $265 and sold it for $315.

15. A dealer had 8 bushels of strawberries. He sold one quart at each house where he called.

16. 962 is 345 less than another number.

17. I bought a horse and carriage for $315. The horse cost $185.

18. A man paid $520 for a span of horses. This was four times as much as he paid for a carriage.

19. A farmer sold 125 sheep. The dogs killed 42. He had 162 left.

20. A farmer put his wheat into 7 bins. He put 278 bu. into each bin.

21. A man divided $8.64 equally among 9 boys.

1. I have $\frac{1}{7}$ as many marbles as Dick, who has 49. How many have I?

2. Harry's father earns $48 a month. Harry earns $\frac{1}{8}$ as much. How much does Harry earn?

3. If you receive 30 cents for selling pop-corn balls at 2 for 5 cents, how many will you sell?

4. How many quart cans can be filled from 32 pints of milk?

5. If you make 36 dots on your slate so that there will be the same number of dots each way, how many will there be each way?

6. Can you arrange 25 dots in the same way? 49? 20?

7. James ate 7 plums, which were $\frac{1}{8}$ of all he had. How many had he at first? How many after eating?

8. If you draw a square and then draw a line through the middle, into how many equal parts is the square divided?

9. If you divide each half into halves, how many parts will you have? If you divide each quarter into halves, how many parts will you have?

10. Draw 3 inch-squares. Divide the first one by drawing a vertical and horizontal diameter. Divide the second by drawing both diagonals. Divide the third by drawing 3 vertical lines $\frac{1}{4}$ of an inch from each other. Into how many parts is each square divided? Are these parts of the same shape? Are they of the same size?

11. May had 17 apples. She ate 1, and gave $\frac{1}{2}$ of the rest to her brother. How many did she have left?

12. Carl has a square garden that is 16 feet around it. How long is one side?

13. If you had two 5-cent pieces, one 2-cent piece, one 3-cent piece, and two 1-cent pieces, how many cents would you have?

1. To 43, add 19.   Take 27 from the sum.

2. George earned 25 cents one day, 17 cents another, and 37 cents another.   How much more must he earn to have a dollar?

3. A farmer cut 7½ tons of hay on 1 piece of land, and 3½ tons on another.   How many tons of hay did he cut?

4. At 4¢ an ounce, find the cost of 2 pounds of cloves.

5. How many gallons in 96 pints?

6. A man had 90 barrels of flour.   He sold 29 bbl. to one man and 37 bbl. to another.   How many barrels had he left?

7. What will be the cost of 1 gal. 1 qt. of milk, at 6¢ a quart?

8. At $3 a day, what will a man earn in 7 working-days?

9. A farmer sold 47 cows, which were ⅛ of his herd. How many cows had he at first?

10. It is 90 miles from New York to Philadelphia. After travelling ⅔ of the distance, how far have you then to go?

11. How many gallons of molasses are there in two jugs, each containing 7 gal. 2 qt.?

12. How many bags will it take to hold 57 pounds of tea, if you put ½ pound into each bag?

13. A man sold a pound of tea for 60 cents, and lost 15 cents.   How much did it cost him?

14. How many ounces are there in 9 pounds?

15. If a horse eats ¼ of a bushel of oats a day, how long will 27 bu. last?

16. If 9 men can do a piece of work in 23 days, how long will it take 1 man to do it?

17. Find the cost of 178 bbl. of cement, at $3 a barrel.

18. Find the cost of 35 thousand bricks at $6 per thousand.

1. From a flock of seven hundred six hens there were sold at one time one hundred ten, and at another time three hundred sixty-five. How many hens remained?

2. If you cut 12 ft. from a kite string 231 ft. long, how many feet of string will remain?

3. $50 were paid for calves at the rate of $5 each. How many calves were bought?

4. How many dollars are there in 50 dimes? In 200 cents?

5. Harry spent 86 cents, which was ½ of what he had. How many cents did he have at first? How many did he have left?

6. When bananas are 24⨍ a dozen, how many can Mary buy for 12 cents? For 36 cents?

7. Write in a column the names of the months, and opposite each the number of days in the month. Add and see how many days there are in a year.

8. Walk round 1 square, counting your steps. If each step was 2 ft., how many feet is it round the square?

9. The distance from B to A is 263 miles, and from B to C is 197 miles. How far is it from A to C? A, B, and C are in the same straight line. Illustrate.

10. Add: Fifty-seven, two hundred sixty-nine, three hundred four, seventeen, four hundred eighty-one.

11. From $6.21 take $5.17.

12. Find the cost of 3 knives at $1.25 each.

13. Add $2 and 35 cents, $5 and 41 cents, $6 and 10 cents, $3 and 7 cents, $1 and 5 cents.

14. Add together ½ of 20, ⅓ of 18, ¼ of 36, ⅕ of 60, and 6 × 4.

15. There are 932 gallons of water in a cistern. If 463 gallons should leak out, how many gallons would remain?

16. Take 6 times 78 from 8 times 89.

1. How many gallons of milk will fill a 12-quart pail?

2. Four squares have how many more corners than four triangles?

3. What will 11 rocking-horses cost, at $4 each?

4. A schoolroom has 60 seats in 5 equal rows. How many seats in each row?

5. If you put 5 times 6 apples in a basket and take out 7 × 4 apples, how many apples will be left?

6. Frank is 8 years old, and he is just ⅓ as old as his mother. How old is his mother?

7. When cloth is 25 cents a yard, how many yards can you buy for $1?

8. What will be the cost of 9 quarts of beans, at 8₵ a quart?

9. What must you put with 42 to make 50?

10. How many 5-cent pieces make a half-dollar?

11. A room is 4 yd. square; how many feet is it across the room?

12. How many yards are there in 2 rods?

13. A boy can saw ½ a cord of wood in a day. How long will it take him to saw 2 cd.? 4 cd.? 6 cd.? How many cords will he saw in 4 days? 8 days? How many cords will 2 boys saw? 4 boys? 10 boys?

14. At 6₵ a pound, what will 6 lb. 8 oz. of meat cost?

15. 2 cents are what part of 3 cents?

16. What will 1 lb. 4 oz. of butter cost, at 24₵ a pound?

17. How many hours is it from half-past eight in the morning till half-past four in the afternoon?

18. At 12₵ a dozen, what will 18 eggs cost?

19. Place 27 blocks on your desk: take away ⅓ of them; take away ½ of what are left; take away ¼ of what are left; take away ⅓ of what are left; take away ½ of what are left; take away ½ of what are left; how many blocks have you?

1. A figure standing in the third place expresses what?

2. Read 675, telling what each figure expresses thus: — 6 ———, 7———, 5———.

3. A figure standing in the fourth place expresses thousands.

4. Ten hundreds make one thousand.

5. 4,532 is read four thousand, five hundred thirty-two.

6. A figure standing in the fifth place expresses ten-thousands.

7. 16,184 is read, sixteen thousand, one hundred eighty-four.

8. A figure standing in the sixth place expresses hundred-thousands.

9. 214,518 is read two hundred fourteen thousand, five hundred eighteen.

10. Read the following numbers: —

1,217	14,626	210,160
3,245	11,014	209,061
1,001	26,106	308,209
6,017	48,164	617,114

11. Write in figures the following: —

    a. Six thousand, two hundred six.

    b. Three thousand twenty.

    c. Sixteen thousand, two hundred four.

    d. Forty-three thousand, two hundred.

    e. Three hundred fourteen thousand, ninety-six.

    f. Two hundred six thousand.

    g. Four hundred two thousand, eight.

    h. One hundred three thousand, one hundred.

12. The first three figures beginning with ones or units is called ones or units period. The next three figures is called thousands period. The two periods should be separated by a comma.

Add :

1.	2.	3.	4.
2622	1078	12,462	14,749
7602	496	1,078	667
420	3475	705	1,898
2094	206	62,784	17,408
546	842	265	7,896
3788	8164	1,789	16,432

Subtract :

5.	6.	7.	8.
6471	5074	42,208	276,163
2548	2867	12,415	145,244

6. Add : — Nine thousand, nine hundred, ninety-nine ; eight thousand, one hundred, forty-one ; five thousand twenty-one ; six thousand, four hundred fifty-nine.

10. From seven thousand, four hundred sixteen, take six thousand, three hundred twenty-five.

11. Add : — Five thousand, six hundred four ; four thousand fifty-seven ; six thousand, seven hundred forty ; five thousand seventy.

12. From eight thousand, seven hundred four take five thousand, six hundred ninety-one.

13. From four thousand two take three thousand one hundred seventy-five.

14. Add : — Seven thousand, four hundred twenty-one ; two thousand, six hundred ninety-four, one thousand one ; two thousand five.

15. Add : — Two thousand seven ; eight thousand, three hundred, five ; four thousand, nine hundred six ; eight thousand, ninety-six.

16. From three thousand, five hundred sixty take two thousand, six hundred seven.

1. If 8 oranges cost 48 cents, what will 1 orange cost?

2. If a gill of milk costs 2 cents, what will a quart cost?

3. Mary had 6 apples, and gave $\frac{1}{4}$ of an apple to each of a number of boys. To how many boys did she give the apples?

4. Grace has $\frac{1}{4}$ of an apple. To how many can she give $\frac{1}{8}$ of an apple?

5. If a man earns $36 in a week, how much does he earn in a day?

6. If I have $\frac{1}{2}$ of an apple, to how many can I give $\frac{1}{6}$ of an apple?

7. If I eat $\frac{1}{3}$ of a loaf of bread every day, how many loaves of bread shall I eat in a week?

8. How many yards in a stick 18 ft. long?

9. If 2 boys can pile up some wood in 6 days, how long will it take 4 boys to do it?

10. At $2 a day, how much will a man earn from Wednesday noon to Saturday night?

11. If 1 qt. of berries costs 9 cents, what will 1 pk. cost?

12. How much will 11 tons of coal cost, if 6 tons cost $36?

13. George sold Henry 5 stamps and Dick 6. They paid him 8 cents for each stamp. How many cents did he receive?

14. In our school-room there are —— windows and —— panes of glass in each window. In the room there are —— panes of glass.

15. If apples cost 2¢ each, and peaches 3¢ each, what is the cost of 5 apples and 6 peaches?

16. If the base of a right-triangle is 4 in. and its altitude 5 in., what is its area?

1. Mr. Jackson paid $457.25 for a horse, $287.50 for a carriage, $56.75 for a harness, $12.35 for robes, and $1.75 for a whip.

2. Below are a dealer's sales for a week. Find the value of the sales for each day, and also the value of each kind of merchandise for the week.

	MON.	TUES.	WED.	THURS.	FRI.	SAT.
Flour,	$175.25	$67.85	$246.29	$47.50	$116.11	$230.40
Sugar,	216.44	111.42	78.92	172.19	48.17	145.36
Tea,	98.17	6.45	15.45	8.39	9.11	75.45
Coffee,	79.71	11.46	9.78	12.15	16.45	26.32
Spices,	37.45	19.75	17.25	36.62	8.15	17.21

3. Add $275, $36.14, $.65, $9.17, $71.64, $426.

4. How much money added to $344 will make $517.26 ?

5. A merchant bought some cloth for $856.75, and sold it at a gain of $136.25. What was the selling-price ?

6. A dealer bought some coal for $865.50, and sold it for $948.75. What was his gain ?

7. How much did a merchant pay for 9 barrels of flour at $4.85 a barrel ?

8. From $236 subtract $97.56.

9. If 9 yards of silk cost $14.76, what is the price a yard ?

Multiply :

10.	**11.**	**12.**	**13.**
$75.26	$6.24	$46.08	$26.47
7	6	8	9

Divide :

14.	**15.**	**16.**	**17.**
4)$6.80	5)$9.45	6)$7.44	9)$7.38

Review Denominate Numbers.

1. How many hours are there from 1.30 P. M. to 4.45 P. M. ?

2. How many hours are there from 9.45 A. M. to 2.30 P. M. ?

3. A train left Boston at 4 P. M. What time will it reach a place 45 miles distant, if it moves at the rate of 30 miles an hour ?

4. How many feet are there in 3 ft. 3 in. and 2 ft. 9 in. ?

5. How many bushels are there in 4 bu. 3 pk. and 3 bu. 1 pk. ?

6. 4 pecks less 2½ pecks are how many pecks ?

7. How many square inches are there in a rectangle 17 in. long and 9 in. wide ?

8. A box is 6 in. long, 5 in. wide, and 4 in. high. How many square inches are there in the top and bottom ? In the two sides ? In the two ends ?

9. How many cubic inches are there in the same box ?

10. How many months are there from May 10 to Aug. 10 ?

11. How many months and days are there from July 8 to Oct. 15 ?

12. How many hours are there in ¾ of a day ?

13. What part of a day is 12 hours ?

14. How many months are there in ¾ of a year ?

15. 4 months is what part of a year ?

16. How many minutes are there in ⅓ of an hour ?

17. 45 minutes is what part of an hour ?

18. How many days are there in 48 hours ?

19. How many minutes are there in 180 seconds ?

20. 9 quarts and 1 pint are —— pints.

21. 7 gallons and 3 quarts are —— quarts.

22. 6 pecks and 5 quarts are —— quarts.

1. If I have 25 apples and eat $\frac{1}{5}$ of them, to how many boys can I give the rest, giving an apple to each boy?

2. Are all fourths of an apple the same size? Are all halves the same size?

3. I heard a boy say, "You have taken the bigger half." What did he mean?

4. Measure 16 feet on the floor or sidewalk. Walk that distance and count your steps.

5. Take that number of steps in a different place. Measure, and see how near it is to 16 feet.

6. To estimate distance by counting your steps is called " pacing."

7. Pace 5 yd. 10 ft. 4 yd. 16 ft. 9 ft. 8 ft.

8. Be sure your steps are of the same length. Measure after pacing to find out your mistake.

9. If you should buy 2 sticks of braid and pay 1 cent a yard, and there were 8 yards in each piece, how much would you have to pay for the braid?

10. Some children are coasting on a hill. 4 sleds are going down with a boy and 2 girls on each sled, and 2 boys and 3 girls are drawing their sled up the hill. How many children are on the hill?

11. How many quarts in $\frac{1}{4}$ of a gallon? In $\frac{1}{4}$ of a peck?

12. How many inches in $\frac{1}{6}$ of a yard? In $\frac{1}{6}$ of a foot?

13. Name the Autumn months. Tell how many days there are in each of the months.

14. What will $2\frac{1}{2}$ yd. of calico cost at 12$\not$ a yard?

15. $4 = \frac{1}{2}$ of? $2 = \frac{1}{8}$ of? $3 = \frac{1}{8}$ of?

16. $6 = \frac{1}{3}$ of? $4 = \frac{1}{4}$ of? $3 = \frac{1}{6}$ of?

17. If 4 tons of hay cost $40, what will 3 tons cost?

18. When 7 qt. of huckleberries cost 35 cents, how many cents will 5 qt. cost?

19. If 28 cents will buy 4 qt. of berries, how many quarts will 35 cents buy?

Copy and learn:

  24 sheets of paper make 1 quire.
  20 quires of paper make 1 ream.
  20 single things make 1 score.

1. A score is how many more than a dozen?

2. How many sheets of paper in half a quire?

3. A quire is usually divided into 4 equal parts. How many sheets are there in each part?

4. How many sheets are there in $2\frac{1}{2}$ quires?

5. How many sheets are there in 5 quires?

6. How many letters can I write with a quire and a half of paper, if I use one sheet with each letter?

7. How many letters can I write with a quire of paper, if I use 2 sheets of paper in each letter?

8. How many quires are there in $\frac{1}{2}$ a ream?

9. How many quires are there in $\frac{1}{4}$ a ream?

10. How many quires are there in $5\frac{1}{5}$ reams?

11. How many sheets of paper are there in 4 quires and 18 sheets?

12. If I can buy 2 sheets of paper for a cent, how much must I pay for a quire?

13. When paper is 16 cents a quire, how much can I buy for 4 cents?

14. If I put a 2-cent stamp on each letter, how much postage must I pay for the letters in example 7?

15. At 12¢ a quire, how much will 6 sheets of paper cost? 12 sheets? 10 sheets? 20 sheets?

16. A score is how many more than a dozen and a half?

17. A man is "3 score and 10" years old. How many years old is he?

18. If your father is a score and 12 years old, how old is he?

19. Mr. A is two score and 8 years old. Mr. B is 55 years old. Which is the older, and how much older?

1. How many inch cubes will a box contain, if it is 9 in. long, 6 in. wide, and 5 in. deep ?

2. Find the area of a sidewalk 48 ft. long and 8 ft. wide.

3. Bought a bicycle for $40, and sold it so as to gain $\frac{1}{10}$ of its cost. What did I gain ? What did I receive for it ?

4. Change $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{6}$ to sixths.

5. 9 ft. 9 in. are how many inches ?

6. How many cubic feet in a pile of wood 10 ft. by 6 ft. by 4 ft. ?

7. Multiply 78 by 8.

8. Divide 497 by 7.

9. Add : $2.05, $6.17, $7.34, $5.13, and two dollars and nine cents.

10. Subtract : Five dollars and seventeen cents from nine dollars and two cents.

11. Find the sum of all the even numbers between 1 and 29.

12. Find the sum of all the odd numbers between 30 and 60.

13. Write these numbers in words : 46, 201, 610, 405.

14. Find the area of a triangle whose altitude is 18 inches and base 9 inches.

15. At $9 a head how many sheep can be bought for $648 ?

16. At $3.75 a pair what will 4 pairs of shoes cost ?

17. $7.52 is $1.86 greater than what sum ?

18. A has $325, which is $126 less than B has. How much has B ? How much have both ?

19. A man had 635 acres of land and sold 286 acres. How many acres had he left ?

20. 3 is what part of 12 ? 9 is what part of 12 ?

21. When eggs cost 20 cents a dozen, how much will 3 eggs cost ? How much will 9 eggs cost ?

1. If ⅓ of my money is $6, how much money have I?

2. What will it cost to launder 4 collars and 6 cuffs at 1½⊄ each?

3. How many months in a quarter of a year?

4. How many hours from 9 P.M. to 6 A.M.?

5. If 5 cents is ¼ of my money, how much is the rest of it?

6. A square is 12 in. long. What can you call it?

7. A rectangle is 6 in. long and 4 in. wide. Into how many half-inch squares can it be divided?

8. In 49 days how many weeks?

9. Is a square a rectangle?

10. Is a rectangle a square?

11. What is the difference between a square and a rectangle?

12. What will 4 oz. of cloves cost at 24⊄ a pound?

13. If a tumbler holds ½ pint of jelly, how many tumblers will your mother need to hold 2 qt. of jelly?

14. If you sleep ⅓ of your time, how many hours will you sleep in a week?

15. A half-note in music equals how many quarter-notes? How many eighth-notes?

16. A quarter-note in music equals how many eighth-notes?

17. How many 2-inch squares can you draw in a 6-inch square?

18. Draw a 2-inch square and a 4-inch square. Compare their length, perimeters, and surfaces.

19. A rectangle contains 20 square inches, and is 4 in. wide. How long is it? Make a diagram on the board to illustrate.

20. If you have 17 cents, how many more cents do you need in order to have 25 cents?

1. Make change for 78 cents out of a dollar.

2. Make change for 59 cents out of 3 quarters.

3. If I give you a $2 bill for a purchase of 35 cents, how much change should you give me?

4. Find how much I must pay for 6 lb. of sausages at 16¢ a pound and 5 lb. of lamb at 18¢ a pound.

5. If I give a $2 bill for the meat how much change ought I to receive?

6. Find the amount of my bill if I buy 2½ lb. of meat at 16¢; 1 lb. of coffee at 36¢; 2 lb. of butter at 25¢; and 1 doz. eggs at 22 cents.

7. I bought some cloth for $1.25, some ribbon for $0.67, and a pair of gloves for $1. What did I pay for all?

8. If I pay $0.85 for mending a pair of shoes; $0.65 for a pair of rubbers; and $2.75 for a new pair of shoes, how much do I pay for all?

9. What change will be given in taking $7.80 from a $10 bill?

10. I have in my pocket-book 2 dollar bills, 3 half dollars, 1 quarter, 3 dimes, and a 5-cent piece. How much money have I?

11. How much must I pay for 1½ doz. oranges at 36 cents a dozen, 6 bananas at 30 cents a dozen, and 9 apples at 2 cents each?

12. Find the cost of 9 lb. of butter at 23 cents a pound, and 8 dozen eggs at 22 cents a dozen.

13. A grocer bought 8 bbl. of flour at $4.20 a barrel, and 7 bu. of potatoes at $0.85 a bushel. How much did he pay for both flour and potatoes?

14. A farmer sold to a grocer 8 doz. eggs at 20¢ a dozen, 9 lb. of butter at 18¢ a pound, and 6 bu. of apples at 60 cents a bushel. How much does the grocer owe the farmer?

1. A farmer had 175 sheep. He bought 57 more, and then sold 68.

2. Charles had $2.25. He spent 75 cents.

3. George had $2.65. His brother had 3 times as much money.

4. An oblong is 6 inches by 8 inches.

5. A dealer had 24 quarts of milk in one can and 17 quarts in another.

6. The dealer sold 36 quarts to his customers.

7. A farmer divided 6 gal. of milk equally among 4 calves.

8. Our family uses 3 qt. of milk every day for a week.

9. Mary left the school-room at 25 min. past 3 o'clock and was absent 10 minutes.

10. A boy earned 85 cents. He received 5$\cancel{\;}$ an hour for every hour he worked.

11. An oblong contains 96 square inches. It is 12 inches long.

12. Henry works in a store from 8 o'clock in the morning until 4 o'clock in the afternoon. He has one hour for dinner.

13. Oscar divided a piece of rope 98 ft. long into pieces 7 ft. long.

14. A 3-in. cube was cut into pieces. Each piece contained 9 cubic inches.

15. A 4-in. square was cut into 4 equal pieces.

16. An oblong that is 4 inches wide contains 32 square inches.

17. I bought fringe enough to go round a mat 6 ft. long and 3 ft. wide.

18. I bought for my mother 3 lb. of raisins at 12$\cancel{\;}$ and 2 gal. of milk at 7$\cancel{\;}$ a quart.

19. Edith bought $2\frac{3}{4}$ yd. of white ribbon and $4\frac{1}{2}$ yd. of blue ribbon.

1. In 1 bu. 2 pk., how many pecks?

2. What part of a minute is 30 seconds?

3. 9 is $\frac{1}{3}$ of how many?

4. 7 is $\frac{1}{3}$ of how many?

5. $12 is $\frac{1}{2}$ of my money; how much money have I?

6. $20 is $\frac{1}{3}$ of my money; how much money have I?

7. Jennie missed 6 words out of 30; what part did she miss?

8. Give all the odd numbers from 1 to 25.

9. I had $500, but spent $\frac{1}{5}$ of it; how much had I left?

10. How many sheets of paper are there in 10 quires?

11. Robert has $2. One-half of his money is in dimes. How many dimes has he? If the rest is in quarters, how many quarters has he?

12. At 2 for 3 cents, what will ten oranges cost?

13. What is the perimeter of a rectangle 4 in. wide and twice as long?

14. What is the area of this rectangle?

15. Find the entire surface of a 3-inch cube.

16. Find the perimeter of a rectangle $2\frac{1}{2}$ in. long and $1\frac{1}{2}$ in. wide.

17. What will $2\frac{1}{2}$ lb. of rice cost at 8¢ a pound?

18. $\frac{1}{2} = \frac{}{10} = \frac{}{16} = \frac{}{20} = \frac{}{24}.$

19. A rectangular granite block is 5 ft. long, 2 ft. thick, and 3 ft. wide. How many cubic feet does it contain?

20. Of a flock of 20 sheep, $\frac{1}{5}$ are black, and the rest are white. How many are white?

21. How much money should you receive for 36 eggs at the rate of 25¢ a dozen?

22. What is the side of a square that contains 4 sq. in.? 16 sq. in?

23. Draw a square a foot long. How many inches is it round the square?

1. What is the entire cost of a cow worth $53, a horse worth $145, and a sleigh worth $49?

2. A merchant had $547.25 on Monday morning. During the day he received $465.17. On Tuesday he received $348.28. How much did he have on hand Tuesday night?

3. A merchant's cash receipts were as follows: $1475, $57, $63.50, $79.97, $27.40, $18, $37.16, $442.14, $563. Find the total cash received.

4. The same merchant paid bills as follows: $162.75, $227, $19.28, $267.16, $76, $15.64, $37.15. How much money did the merchant pay out?

5. A man dying left his property to his children. He gave the oldest $2250, the next oldest $2100, the third $1950, and the fourth $1800. What was the value of his property?

6. The population of a city increased during the first year 962, the next 789, the third 1478, the fourth 1257, and the fifth 1576. How much did the population increase during the five years?

7. Find the sum of 9 dollars and 28 cents, 11 dollars and 17 cents, 32 dollars and 74 cents, 62 dollars and 5 cents, 114 dollars and 32 cents.

8. Six loads of wheat were sold for the following sums: $649.37, $718.19, $519.05, $570.52, $756.58, $956.51. What sum of money was received for the wheat?

9. The expenses of a school district for several months were as follows: $410.56, $317.05, $162.42, $517.69, $162.94. What were the total expenses?

10. The expenses for building a house were as follows: lumber $497.56, brick-work $179.65, plastering $182.-52, painting $346.78, grading $169.50, labor $216.75. What was the cost of the house?

1. A merchant had $3271 and spent $1847 for cotton goods and the remainder for woolen goods. Find the cost of the woolen goods.

2. A has $5262, which is $1796 more than B has. How much has B?

3. A man purchased $62.19 worth of goods and gave a $100-bill in payment. How much change did he receive?

4. I sold my horse for $165.25, which was $27.75 more than I paid for it. Find the cost of the horse.

5. A merchant commenced business with $2147, and at the end of the year he had $3216. How much did he gain during the year?

6. A had $247.75 and B had $462.52. If A spent $68.50 and B spent $184.62, how much had each left? Which had the larger sum and how much larger?

7. How much greater than 1462 is 3781?

8. How much less than 1214 is 579?

9. I received during the day $216.41 and paid out $187.19. How much more did I receive than I paid out?

10. Mr. Bishop sold for $5115 a house and lot that cast him $4268. Find his gain.

11. A man's income one year was $2867 and the next year it was $4124. How much greater was his income the second year than the first?

12. A man spent $1679 for cattle. If he had $3127 at first, how much had he left?

13. Find the time that has passed since the discovery of America in 1492.

14. What sum must be added to 2434 to make the sum 4375?

15. A man closed business with $5248, which was $986 more than his capital at commencement. What was his capital?

1. How many books worth $3 each can I buy for $33?

2. Jennie is 6 years old. If she is $\frac{1}{5}$ as old as her mother, how old is her mother?

3. A farmer sold 4 dozen eggs at 20 cents a dozen. How much money did he receive for them?

4. A man had 36 bu. of corn and carried $\frac{1}{4}$ of them to the mill. How many bushels did he carry to the mill?

5. How many 5-gallon cans can be filled from a barrel of oil that contains 45 gallons?

6. George is one score years old and his mother is twice as old. How old is she?

7. Find one side of a square if the distance round it is 48 feet.

8. My horse is worth $100 and my carriage $85. What are both worth?

9. What is the cost of 2 gallons of kerosene at 5¢ a quart?

10. How many days more than 4 weeks are there in the month of June?

11. Mr. Jones bought a cow for $46 and sold her for $8 less than he paid for her. For how much did he sell her?

12. Mary's hat cost $3 and her cloak 5 times as much. How much did the cloak cost? How much did both cost?

13. If 6 tons of straw cost $72, what will 1 ton cost?

14. There are six working days in a week. How much will a man receive for one week's work at $5 a day?

15. One man owes me $15, another owes me $7 and another $9. How much do the 3 men owe me?

16. If a ship sails 8 miles an hour, in what time at the same rate will she sail 72 miles?

1. What will 8 city lots cost at $1975 each?

2. If one acre of land is worth $268, what are 6 acres worth at the same rate?

3. If a horse costs $165, what will 7 horses cost at the same rate?

4. There are 231 cubic inches in a gallon. How many cubic inches are there in 9 gallons?

5. If a steamer sails 239 miles in one day, how far will she sail in 5 days?

6. How many oranges are there in 8 boxes, if each box contains 275 oranges?

7. If a clerk deposits $455 annually in a savings bank, how much will he deposit in 7 years?

8. If a locomotive wheel revolves 459 times in going one mile, how many times will it revolve in going 9 miles?

9. If a barrel of flour is worth $6, how much are 398 bbl. worth at the same rate?

10. There are 196 lb. of flour in a barrel, how many pounds of flour are there in 9 barrels?

11. In how many days can 5 men do the work that one man can do in 386 days?

12. If a man earns $4.25 a day, how much will he earn in 7 days?

13. A man paid $958 for a lot and 4 times as much for a house. What was the cost of the house?

14. The cost of one building lot was $865. Find the cost of 8 lots at the same rate.

15. If a man saves $853 a year, how much can he save in 6 years?

16. In one cubic foot there are 1728 cubic inches. How many cubic inches are there in 9 cubic feet?

17. If one ton of hay costs $18, what will 8 tons cost?

18. Find the cost of 7 pairs of shoes at $2.95 a pair.

1. If 7 acres of land are worth $1925, what is one acre worth?

2. How far will sound move in a second, if it moves 6720 feet in 6 seconds?

3. If there are 9625 letters on 7 pages of a book, how many letters are there on one page?

4. How many cubic inches are there in one gallon, when there are 1155 cubic inches in 5 gallons?

5. How many yards are there in 291 feet?

6. A carpenter received $224 for building 8 rods of fence. What was the cost a rod?

7. How many days will 7056 reams of paper last a publisher, if he uses 9 reams a day?

8. How much will a farmer pay for 1 cow, if he pays $270 for 6 cows?

9. If a boy writes 140 words in his spelling lessons in 5 days, how many words will he write in 1 day?

10. 8 boys have 120 marbles. If each boy has the same number, how many marbles has 1 boy?

11. If a train of cars runs 192 miles in 6 hours, how far will it run in one hour?

12. How long will it take a ship to sail 272 miles at the rate of 8 miles an hour?

13. How many yards of cloth can a tailor buy for $4456 at the rate of $4 a yard?

14. If 8 tons of hay cost $112, what will 1 ton cost?

15. How many tons of coal at $7 a ton can be bought for $1645?

16. If 1 acre of land costs $9, how many acres can you buy for $6570?

17. A farmer sold some sheep at $7 a head. If he received $1925, how many sheep did he sell?

18. A house cost $5775. If this was 7 times as much as the lot cost, how much did the lot cost?

1. What will 2 yd. of cloth cost, if 5 yd. cost 40 cents?

2. How long will 1 bushel of oats last, if 8 qt. are used each day?

3. How long will 32 quarts of oats last, if 1 peck is used each day?

4. How long will 1 bushel of oats last, if 1 peck is used each day?

5. If you can buy 2 sheets of paper for a cent, what will 1 quire cost?

6. Four pentagons have how many more angles than four squares? A pentagon has 5 sides.

7. A boy has a quarter of a dollar, a dime, a five-cent piece, and two cents. How much money has he?

8. What four equal numbers make 64?

9. A boy had 4 doz. bananas, and gave away 40. He sold the rest at 3¢ each. How much did he receive for them?

10. One ox wears 8 shoes. How many yoke of oxen will wear 32 shoes?

11. Grace studied 30 minutes every day. How many hours did she study in 4 days?

12. Nellie spent 49 days of her vacation at her grandfather's farm. How many weeks was she there?

13. 45 cents will buy 9 yd. of calico. What will 1 yd. cost?

14. How many faces have 8 cubes?

15. How many pecks in 9 bushels?

16. How many quarts in 6 pecks?

17. Make change for 82 cents out of a dollar.

18. Make change for 56 cents out of 3 quarters.

19. Make change for 33 cents out of a dollar.

20. If I give you a $2 bill for a purchase of 27 cents, how much change must you give me?

1.	2.	3.	4.	5.
70486	2863	7489	6381	25043
62494	9734	3578	8621	46302
81469	5636	8225	5413	39540
47857	6936	2993	5123	53724
39867	7347	7843	1597	47593
58764	3774	3472	5179	45684
96704	8676	7289	7593	94658
96748	6676 .	9778	9743	86947
47837	2397	8974	6339	81732
42679	5593	8734	6968	89653

	11.	12.	13.	14.	15.
6.	2476 +	1785 +	6791 +	6579 +	4687 = ?
7.	5348 +	3586 +	9726 +	7789 +	9879 = ?
8.	2687 +	7289 +	9876 +	5362 +	7814 = ?
9.	3759 +	4839 +	7928 +	7337 +	8388 = ?
10.	6828 +	7147 +	3553 +	2935 +	8173 = ?

16.	17.	18.	19.	20.
7108	3768	5343	4272	4675
3649	9673	8620	4947	6746
8674	3968	5684	4639	9687
9756	6493	7343	5897	9689
7853	7164	5474	7556	4885

21.	22.	23.	24.	25.
7383	8567	9259	8956	8485
8998	6917	7245	8967	8689
6183	9276	6729	5678	4567
7638	8927	8367	7254	3487
2763	8156	4527	7317	5678

Subtract the following :

1.	2.	3.	4.
9759	7598	5986	8387
6772	2949	3887	3686

5.	6.	7.	8.
8984	6425	7480	2589
6476	3369	4878	1787

9.	10.	11.	12.
5987	5776	7787	6658
3759	2874	3978	2764

13.	14.	15.	16.
8402	6086	3695	9579
6832	3794	1868	5685

17.	18.	19.	20.
5868	4494	6365	8663
3945	2887	3654	7472

21.	22.	23.	24.
6924	8717	7926	5749
3752	4433	4548	3721

25.	26.	27.	28.
8719	3462	4907	3115
4864	1974	2764	1607

29.	30.	31.	32.
6004	4008	5070	3090
4275	2639	3748	1986

1. A box is 4 in. long, 3 in. wide, and 2 in. deep. If it is filled with nails, how many cubic inches of nails does it hold?

2. How many square inches are there in the top of this box? What other face of the box has the same number of square inches?

3. How many square inches in one end of this box? How many square inches in the other end?

4. How many square inches in one side of this box? How many square inches in the other side?

5. Take a cube and put your finger on the front upper right-hand corner of it. In how many different directions can you move your finger and yet follow along an edge of the cube?

6. Because any solid, like a box or cube, extends from one point in 3 directions, we say it has 3 dimensions.

7. How many dimensions has a box or room?

8. How do you find the number of square feet in the floor of a room?

9. What two dimensions of a room are multiplied together to find the number of square feet in the ceiling?

10. How do you find the square feet in one side of a room?

11. How do you find the number of square feet in one end of a room?

12. Make a pile of blocks that shall contain 24 cubic inches. How long, wide, and high is the pile? What are the dimensions of the pile?

13. Make an example to illustrate cubic contents.

14. How many cubic inches in a box 4 in. by 3 in. by 3 in.?

15. A box is 6 in. long, and there are 24 square inches in the top. How wide is the box? The side of the box contains 18 square inches. How high is it?

1. By selling a lot of lumber for $2116, a dealer gained $278. Find the cost of the lumber.

2. A merchant's sales for one week were as follows: —Monday $291.27, Tuesday $234.35, Wednesday $209.24, Thursday $203.59, Friday $169.05, Saturday $381.65. What was the amount of the sales for the week?

3. A man left $2149 to one son, and $1975 to his other son. How much did he leave to both sons?

4. He also left $2050 to one daughter, and $2115 to his other daughter. How much did he leave to both daughters?

5. How much more did the daughters receive than the sons?

6. James Asher earns $1250 a year. If it costs him $875 for living expenses, how much can he save in a year? How much can he save in 6 years?

7. I bought a suit of clothes for $39.50, an overcoat for $19.75, a pair of shoes for $4.85, and a hat for $2.67. What was the amount of my bill?

8. When 6 barrels of flour cost $28.50, what will 1 barrel cost? What will 7 barrels cost?

9. A man paid $27 for clothing, $78 for board, $21.50 for books, and a debt of $198. How much money did he pay out? If he had $375 at first, how much did he have left?

10. A dealer sold a carriage for $278 and made $56.25. What did the carriage cost him?

11. A horse which cost his owner $135, was sold at a gain of $26. How much did the owner receive for it?

12. By selling a farm for $7694, the owner lost $1743. What was its cost?

13. If a man divides some money among his 6 children giving each one $386, how much money does he divide?

Liquid Measure

4 gills	= 1 pint
2 pints	= 1 quart
4 quarts	= 1 gallon

Dry Measure

2 pints	= 1 quart
8 quarts	= 1 peck
4 pecks	= 1 bushel

Measures of Length

12 inches	= 1 foot
3 feet	= 1 yard
$5\frac{1}{2}$ yards	= 1 rod
$16\frac{1}{2}$ feet	= 1 rod

Avoirdupois Weight

16 ounces	= 1 pound

Measures of Time

60 seconds	= 1 minute
60 minutes	= 1 hour
24 hours	= 1 day
7 days	= 1 week
52 weeks 1 day	= 1 year
12 months	= 1 year

Miscellaneous Table

12 units	= 1 dozen
24 sheets	= 1 quire
20 quires	= 1 ream
20 single things	= 1 score

$1 \times 2 = 2$	$2 \div 2 = 1$	$1 \times 3 = 3$	$3 \div 3 = 1$
$2 \times 2 = 4$	$4 \div 2 = 2$	$2 \times 3 = 6$	$6 \div 3 = 2$
$3 \times 2 = 6$	$6 \div 2 = 3$	$3 \times 3 = 9$	$9 \div 3 = 3$
$4 \times 2 = 8$	$8 \div 2 = 4$	$4 \times 3 = 12$	$12 \div 3 = 4$
$5 \times 2 = 10$	$10 \div 2 = 5$	$5 \times 3 = 15$	$15 \div 3 = 5$
$6 \times 2 = 12$	$12 \div 2 = 6$	$6 \times 3 = 18$	$18 \div 3 = 6$
$7 \times 2 = 14$	$14 \div 2 = 7$	$7 \times 3 = 21$	$21 \div 3 = 7$
$8 \times 2 = 16$	$16 \div 2 = 8$	$8 \times 3 = 24$	$24 \div 3 = 8$
$9 \times 2 = 18$	$18 \div 2 = 9$	$9 \times 3 = 27$	$27 \div 3 = 9$
$10 \times 2 = 20$	$20 \div 2 = 10$	$10 \times 3 = 30$	$30 \div 3 = 10$

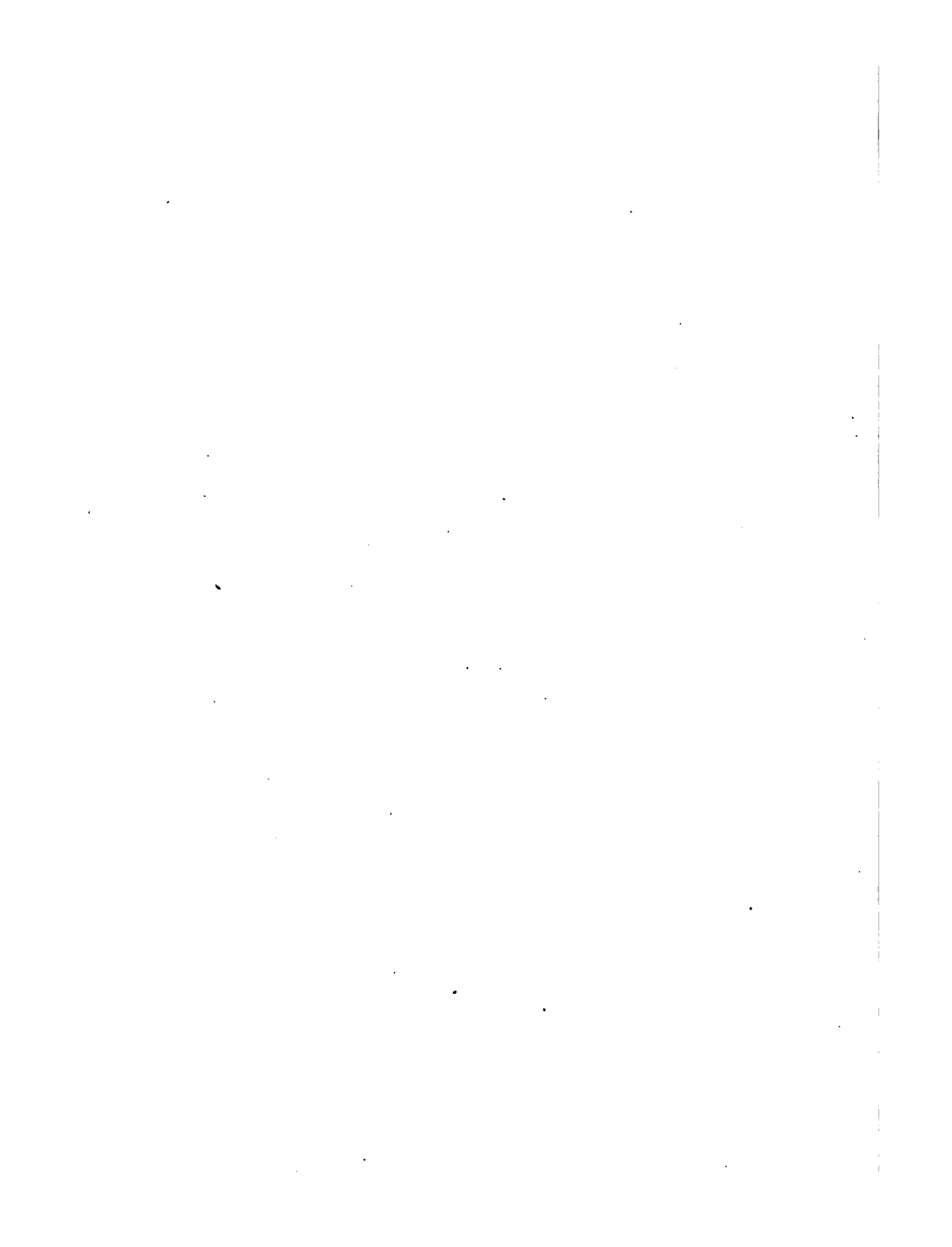|			
$1 \times 4 = 4$	$4 \div 4 = 1$	$1 \times 5 = 5$	$5 \div 5 = 1$
$2 \times 4 = 8$	$8 \div 4 = 2$	$2 \times 5 = 10$	$10 \div 5 = 2$
$3 \times 4 = 12$	$12 \div 4 = 3$	$3 \times 5 = 15$	$15 \div 5 = 3$
$4 \times 4 = 16$	$16 \div 4 = 4$	$4 \times 5 = 20$	$20 \div 5 = 4$
$5 \times 4 = 20$	$20 \div 4 = 5$	$5 \times 5 = 25$	$25 \div 5 = 5$
$6 \times 4 = 24$	$24 \div 4 = 6$	$6 \times 5 = 30$	$30 \div 5 = 6$
$7 \times 4 = 28$	$28 \div 4 = 7$	$7 \times 5 = 35$	$35 \div 5 = 7$
$8 \times 4 = 32$	$32 \div 4 = 8$	$8 \times 5 = 40$	$40 \div 5 = 8$
$9 \times 4 = 36$	$36 \div 4 = 9$	$9 \times 5 = 45$	$45 \div 5 = 9$
$10 \times 4 = 40$	$40 \div 4 = 10$	$10 \times 5 = 50$	$50 \div 5 = 10$

$1 \times 6 = 6$	$6 \div 6 = 1$	$1 \times 7 = 7$	$7 \div 7 = 1$
$2 \times 6 = 12$	$12 \div 6 = 2$	$2 \times 7 = 14$	$14 \div 7 = 2$
$3 \times 6 = 18$	$18 \div 6 = 3$	$3 \times 7 = 21$	$21 \div 7 = 3$
$4 \times 6 = 24$	$24 \div 6 = 4$	$4 \times 7 = 28$	$28 \div 7 = 4$
$5 \times 6 = 30$	$30 \div 6 = 5$	$5 \times 7 = 35$	$35 \div 7 = 5$
$6 \times 6 = 36$	$36 \div 6 = 6$	$6 \times 7 = 42$	$42 \div 7 = 6$
$7 \times 6 = 42$	$42 \div 6 = 7$	$7 \times 7 = 49$	$49 \div 7 = 7$
$8 \times 6 = 48$	$48 \div 6 = 8$	$8 \times 7 = 56$	$56 \div 7 = 8$
$9 \times 6 = 54$	$54 \div 6 = 9$	$9 \times 7 = 63$	$63 \div 7 = 9$
$10 \times 6 = 60$	$60 \div 6 = 10$	$10 \times 7 = 70$	$70 \div 7 = 10$

1 × 8 = 8	8 ÷ 8 = 1	1 × 9 = 9	9 ÷ 9 = 1
2 × 8 = 16	16 ÷ 8 = 2	2 × 9 = 18	18 ÷ 9 = 2
3 × 8 = 24	24 ÷ 8 = 3	3 × 9 = 27	27 ÷ 9 = 3
4 × 8 = 32	32 ÷ 8 = 4	4 × 9 = 36	36 ÷ 9 = 4
5 × 8 = 40	40 ÷ 8 = 5	5 × 9 = 45	45 ÷ 9 = 5
6 × 8 = 48	48 ÷ 8 = 6	6 × 9 = 54	54 ÷ 9 = 6
7 × 8 = 56	56 ÷ 8 = 7	7 × 9 = 63	63 ÷ 9 = 7
8 × 8 = 64	64 ÷ 8 = 8	8 × 9 = 72	72 ÷ 9 = 8
9 × 8 = 72	72 ÷ 8 = 9	9 × 9 = 81	81 ÷ 9 = 9
10 × 8 = 80	80 ÷ 8 = 10	10 × 9 = 90	90 ÷ 9 = 10

1×10 = 10	10÷10 = 1	1×11 = 11	11÷11 = 1
2×10 = 20	20÷10 = 2	2×11 = 22	22÷11 = 2
3×10 = 30	30÷10 = 3	3×11 = 33	33÷11 = 3
4×10 = 40	40÷10 = 4	4×11 = 44	44÷11 = 4
5×10 = 50	50÷10 = 5	5×11 = 55	55÷11 = 5
6×10 = 60	60÷10 = 6	6×11 = 66	66÷11 = 6
7×10 = 70	70÷10 = 7	7×11 = 77	77÷11 = 7
8×10 = 80	80÷10 = 8	8×11 = 88	88÷11 = 8
9×10 = 90	90÷10 = 9	9×11 = 99	99÷11 = 9
10×10 = 100	100÷10 = 10	10×11 = 110	110÷11 = 10

1×12 = 12	12÷12 = 1	1×13 = 13	13÷13 = 1
2×12 = 24	24÷12 = 2	2×13 = 26	26÷13 = 2
3×12 = 36	36÷12 = 3	3×13 = 39	39÷13 = 3
4×12 = 48	48÷12 = 4	4×13 = 52	52÷13 = 4
5×12 = 60	60÷12 = 5	5×13 = 65	65÷13 = 5
6×12 = 72	72÷12 = 6	6×13 = 78	78÷13 = 6
7×12 = 84	84÷12 = 7	7×13 = 91	91÷13 = 7
8×12 = 96	96÷12 = 8	8×13 = 104	104÷13 = 8
9×12 = 108	108÷12 = 9	9×13 = 117	117÷13 = 9
10×12 = 120	120÷12 = 10	10×13 = 130	130÷13 = 10